ENGINEERING NEWS-RECORD

Building the Arctic warning system p.26

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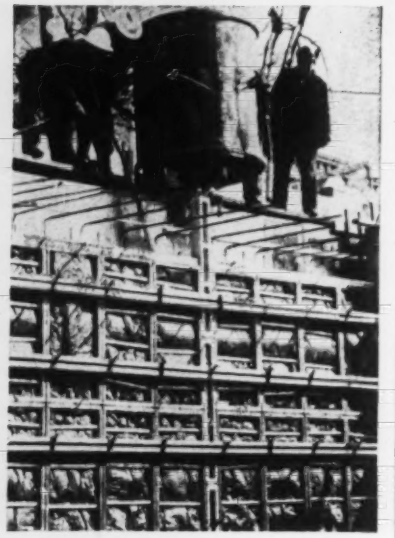

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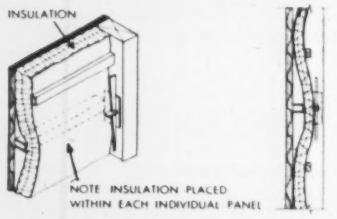

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tube was cast in the wall four feet from the top with a thermometer suspended in the bottom. After 24 hours, temperature at center of concrete rose to 105 degrees and after five days the concrete went back to 70.

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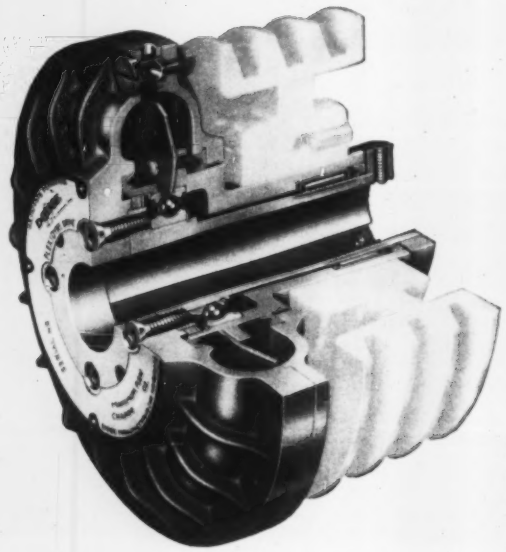

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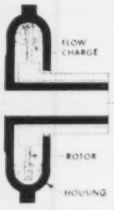

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We Are Drifting, Not Planning

Sir—Mr. F. A. Eckhart (ENR Nov. 5, p. 10), replying to the writer's query, "Are we planning or drifting?" (ENR Aug. 6, p. 6), seems to have missed the point.

The writer is actually not driving at the implication that the engineer, or whoever is engaged in planning, must "think and act" (isn't planning both?). Nor is the writer "wondering" why utilities are dug out frequently and reburied in the streets. Nor why people drive large cars. The writer is not "wondering"—the writer is pointing these out as samples of the numerous problems that the planner must think of while planning.

The writer further pointed out that even a regional master plan is not enough, for current master planning merely concerns the establishment of ultimate lines on paper, these lines eventually becoming streets, viaducts, land use areas and what-not. However, the time-lag between "planning the lines" and their metamorphosis into physical realities makes them fairly obsolete due to the rapidly shifting population pressures.

It needs no restating at this time that the "population explosion" everyone talks about is creating havoc in all our master plans, regional plans and "surveys". When we estimate that the population of the New York Metropolitan Region alone will reach 25 million in 15 years and when we guess that in 40 years 85% of our national population will reside in urban areas, we have good reason to be concerned as to how we will plan ahead.

Yet plan ahead we must—and plan seriously—"with deliberate speed".

However, to be able to plan ahead we must take long, hard looks at the entire complex of our way of life. We mustn't add another patch here, another there; add a bridge deck here, a parking area there, a viaduct somewhere else, on the theory that it is important to solve the problem at one point without too much regard to the problems created elsewhere. This merely postpones—and complicates—the inevitable.

No, we must decide, once and for all, who are the cities for—for the people who reside there, or for the transient car owner who comes in with 1.4 passengers over the bridge in his "status" 22-ft car, and complicates tarffic, public transportation, parking, all pedestrian facilities—for the entire time he is in the city—unmindful that he could save all this by mass transit.

We engineers must remember this. We must also remember that when we design a plant, we carry the utilities in a tunnel, so as to have easy access to them. Only when we deal with municipal planning do we seem to forget all this and rebury the utilities in the streets.

And we must remember, or the authorities should demand of us, that cars occupying public space, which is in great demand, should not monopolize it with wide bases, long bodies, outlandish fins—which are neither functional nor economical, nor "style." It is even questionable whether they add to "status."

We may also remember that car bodies need not necessarily be made of steel, which can crush or kill.

Further, we engineers should understand, and educate the people to understand, that as our population increases, and per capita living space decreases at a very rapid rate—housing, the moving of goods and people, become very important and require coordinated planning—along regional-geographic lines, along functional and economic lines—along lines where "every man for himself" is verboten.

We know now that garment centers and the like no longer belong in cities, but in industrial districts. We know now that within the next few years the entire region from Boston to Maryland will form one continuous "Megalopolis"; and we engineers, who should know better, are wading right into it without plans or even a larger view.

This I call "drifting," not "planning".

Louis Tarnopoll
Pascack Valley Regional Planning Association
Tarnopoll & Associates
New York, New York

A Vote for Utility Tunnels

Sir—Reader Kenneth Young criticizes your editorial "Why Not Utility Tunnels" (ENR Nov. 19, p. 39).

I believe Mr. Young is wrong in his attitude and conclusions, and your editorial (ENR Aug. 20, p. 132) deserves acclaim instead of criticism.

About 40 years ago I developed and advocated a utility tunnel. I went further than your editorial, and in my design included provision for sewer construction (separate storm and sewage system), all utilities, and what I called logical snow disposal by taking advantage of the ground heat and heat otherwise lost in the sewage to melt the snow in the sewer.

At the time, the sewer on 43rd St. between 5th and 6th Avenues in New York City had to be replaced because it was structurally unsound, and I offered to build my combined sewer, snow disposal and utility tunnel in this long block at my own expense for the City of New York. Except for sympathetic talks with some of the officials, I got nowhere.

The objections Mr. Young made were all considered at the time and logically provided for. Items like accessibility to utilities, safety of servicing utilities, natural ventilation, snow disposal, protection of electric utilities without duct construction, etc.

Forty years ago costs were much lower than today, but in spite of present high costs, in large cities the cost can be justified where old sewers are to be replaced.

The cost of snow removal, to say nothing about the tremendous loss sustained by industry when streets are clogged with snow, should make this economically feasible, and surely is worth the time for current study.

Lets have more provocative and progressive editorials like the above, as it is the best way to stimulate progress.

L. Davidson
Consulting Engineer
New York, N. Y.

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What Price Tolls?

Sir—Your editorial on toll collecting (ENR, Dec. 3, p. 120) was greatly appreciated. We had just returned from a trip from Ithaca, N. Y., to Atlantic City, N. J., and had experienced the frustration of approaching a toll bridge without any idea of the amount of tolls. We heartily agree with you that a sign indicating the amount of the toll would be of great help to a confused motorist, who is not acquainted with the area through which he is travelling.

Your editorial was to the point and we hope that it will be noted by those in charge of these facilities and that they will do something to rectify this situation.

Marvin Bogema
Professor of Civil Engineering
Cornell University
Ithaca, N. Y.

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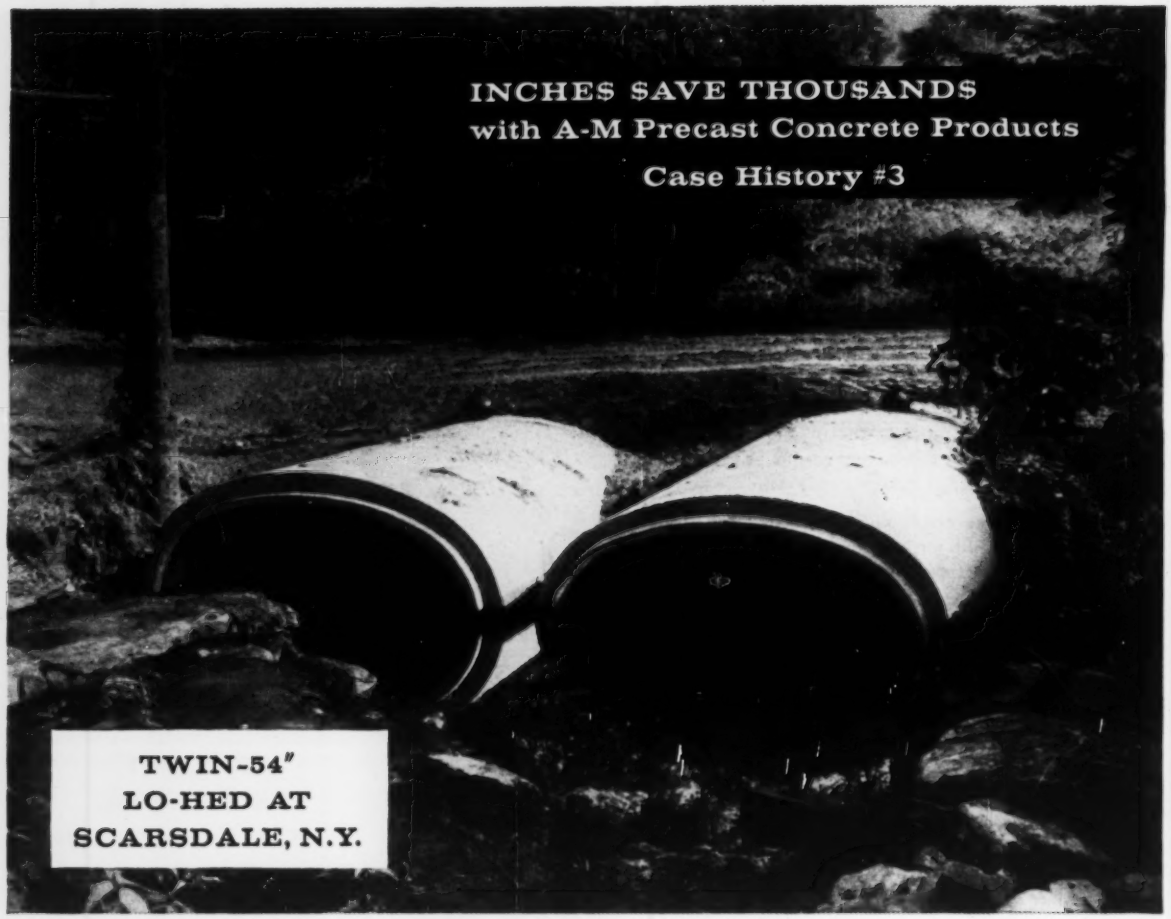

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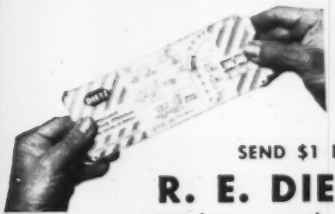

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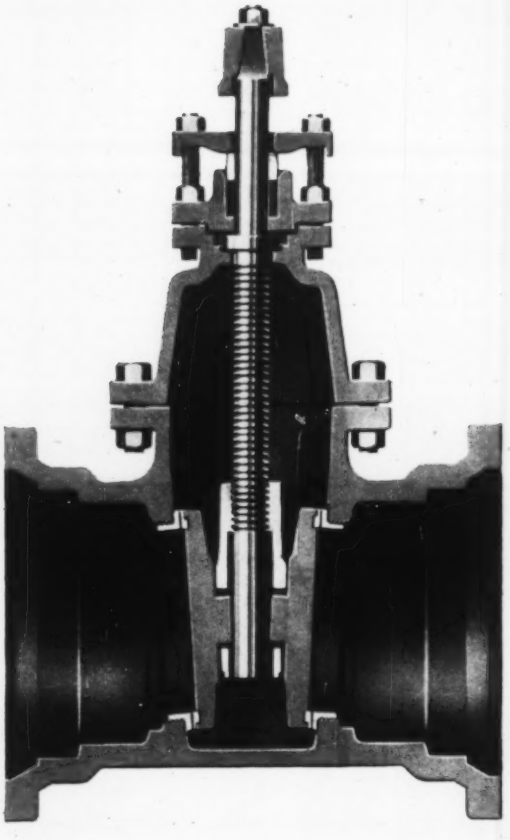

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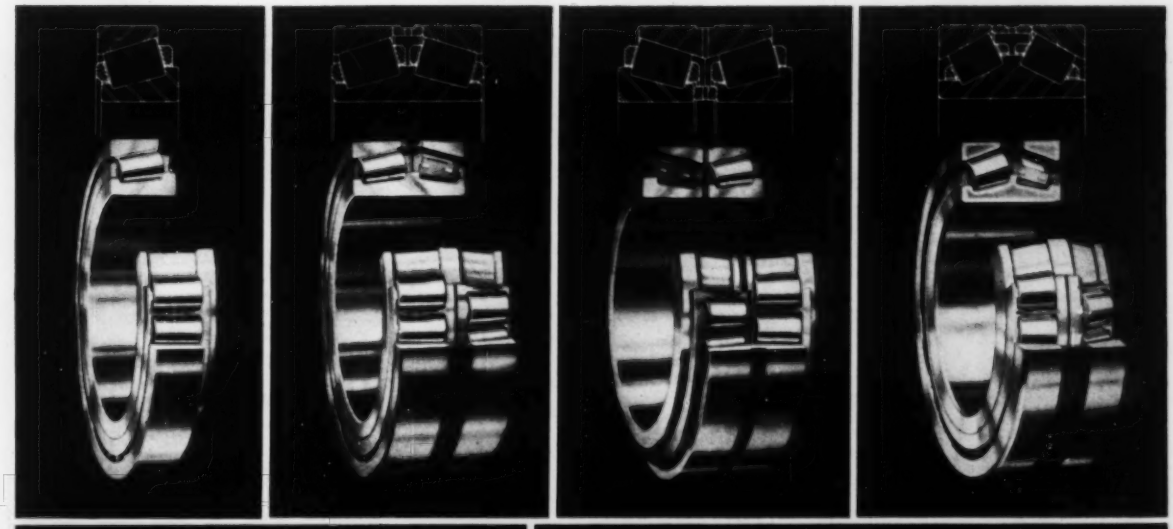

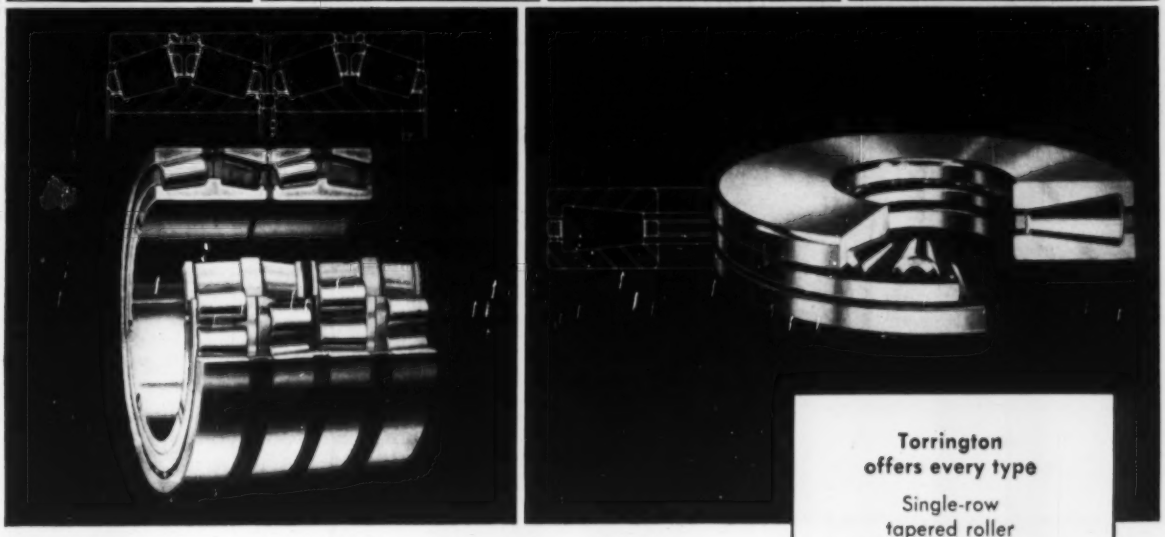

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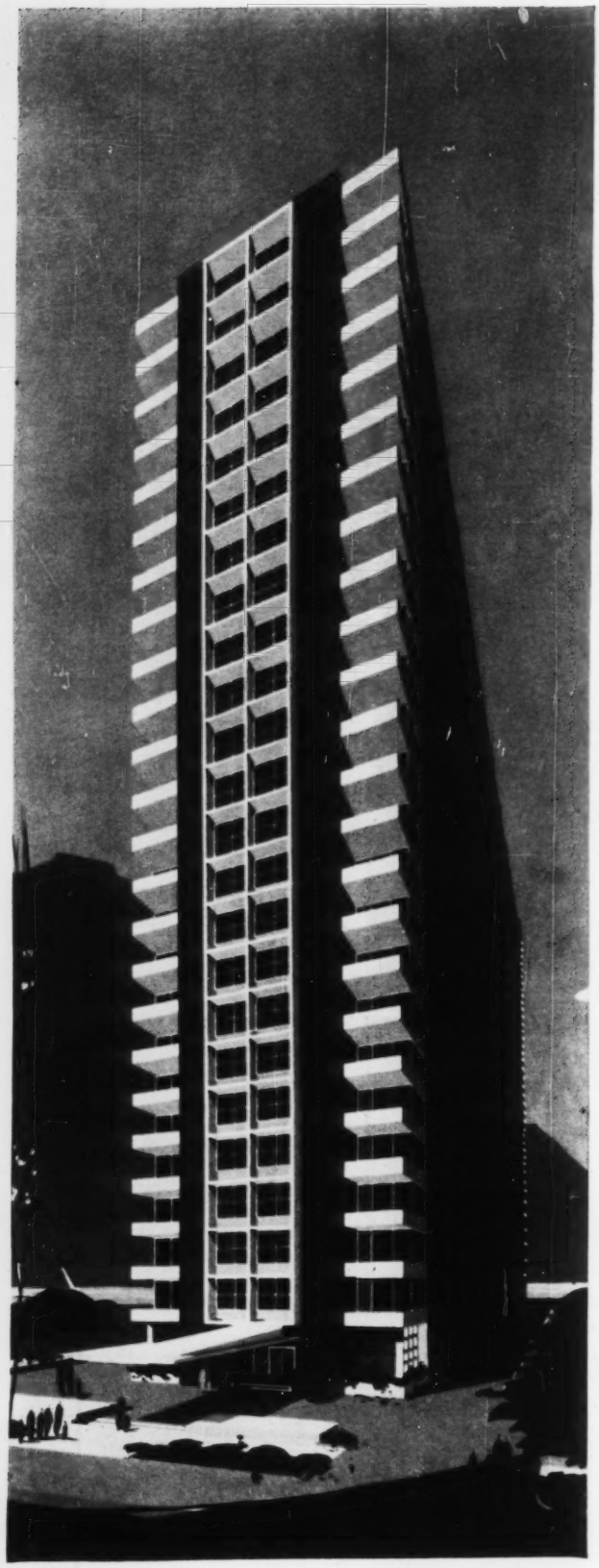

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THE CONSTRUCTION WEEK

LOW BIDDER BIDS ADIEU—A construction firm that offered to build a 12-mile road for $1,834,673 is now offering $91,000 to get out of it. When Rocky Mountain Construction Co., Missoula, Mont., found the second low bid was $650,924 higher than its own low, it asked to be excused by Bureau of Public Roads. Rocky Mountain posted a $91,000 bid bond. The job is a road leading up to Kitt Peak, near Tucson, Ariz., site of a U.S. observatory.

NEW RECORD LOGGED—Commercial construction contract awards have broken a record even before the books are closed on 1959. In the first 51 weeks, commercial contracts reported by ENR totaled $2.09 billion, topping the record of $2.05 billion in 1956.

SNAKE CONTENDERS SQUARE OFF—Hearings are expected to start early next year on protests against Pacific Northwest Power Co.'s High Mountain Sheep Dam on the Snake River. Protests have been filed with the Federal Power Commission by these three groups: Oregon State Game and Oregon State Fish commissions; Northwest Public Power Association and National Hells Canyon Association; Idaho Public Utilities Commission.

NEW STEEL—A 35-ton girder hoisted into place for Pittsburgh's Civic Auditorium was the first steel to go into the project since the steel strike halted work.

FOR BIG RUMPUS OR SMALL—The latest twist in shelter design is a walnut-paneled room designed by the American Institute of Decorators to serve as a guest room, rumpus room or workshop when not being used to hide in. It uses the basic design approved by the Office of Civil and Defense Mobilization—a basement room 12x8 ft enclosed in 8 in. concrete. But it adds such refinements as convertible sofas, vinyl floors, finished walls, TV set and cabinets. P.S.—Home shelters are now eligible for financing under FHA's mortgage insurance program.

SEWAGE OUT WITH OLD YEAR—Directors of the Federation of Sewage & Industrial Wastes Associations have made it official: Starting January 1, the name will be Water Pollution Control Federation. Now the organization's constituent state and regional associations and the Water & Sewage Works Manufacturers Association are thinking about a corresponding change.

HOOD CANAL HOODOO—Another serious pontoon accident on Washington State's Hood Canal floating bridge forced builders to halt work until spring. Two of the 50x360-ft concrete pontoons collided in high winds, punching a hole in one of them. About this time last year, two pontoons sank in Duwamish Waterway (ENR Jan. 8, p. 25).

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WASHINGTON OBSERVER

- School bill possible; veto probable
- Bridge heights still up in the air

- **A federal school construction bill may be voted in the coming Congress, but there is grave doubt that the Democrats will be able to push through a measure the White House will not veto.**

Efforts at a compromise have not been fruitful. Rep. Cleveland Bailey (D., W. Va.) of the House Education Subcommittee is telling friends privately that the Administration is "unwilling to compromise." The Administration's major recommendation will apparently be unchanged—a joint federal-state guarantee of interest payments on school bonds issued by the very poorest school districts. Democrats call it too little.

Senate Democratic Leader Lyndon Johnson wants a bill in 1960. This is a shift for Senator Johnson. Last session, although he never made a forthright statement of opposition, he did discourage action. The Senate now is expected to act early on a $1-billion construction bill by Sen. Pat McNamara (D., Mich.). House Speaker Sam Rayburn will favor such a bill over the so-called Metcalfe bill, which has been blocked by the House Rules Committee. It proposes per capita federal apportionments to the states, and would permit the money to be used either for school construction or for improvement of teacher pay schedules.

President Eisenhower probably would veto both the McNamara and Metcalfe bills, should either reach him.

—

- **Officials are still shuffling papers over the height of bridges on the Interstate system.** A requirement that all new bridges (and some old ones) have a minimum clearance of 17 ft instead of the present 14 ft has been all around town at least once.

The Defense Department is the prime mover and has informal White House approval. Bureau of Public Roads also got approval from the American Association of State Highway Officials.

But Secretary of Commerce Frederick Mueller sent the request back to Defense for another review. Among other things, there have been some critical newspaper stories about committing the added millions in cost when the Pentagon really doesn't know whether it needs a 16-ft, 17-ft or 20-ft clearance.

Pentagon officials admit they're guessing on the height they will need. But they say they know for sure that the present 14-ft minimum isn't enough to handle the missiles we have now—the Atlas and Titan.

Expectation is that the Pentagon will stick with its 17-ft figure, that it won't pay any of the cost, and that Secretary Mueller will eventually approve the requirement.

Congress could raise a fuss about the added cost of an estimated $1 billion. But the legislators aren't apt to make a showdown fight if Pentagon and Commerce officials say the change is needed to move missiles around the country freely. Two things are involved: moving missiles to fixed bases, wherever they may be, and moving missiles on truck-type mobile launching platforms—which the Pentagon has in its planning.

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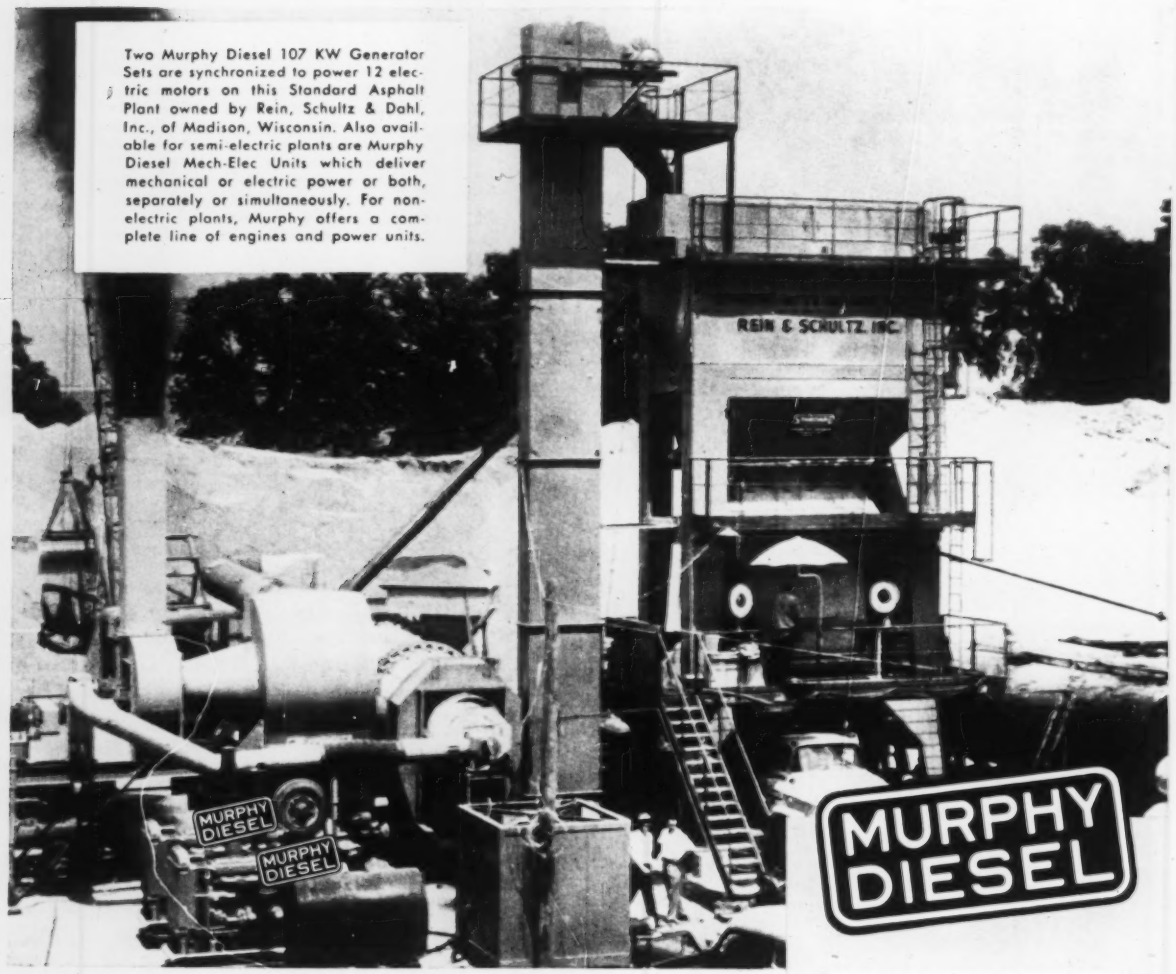

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The Washington Outlook . . .

Lots of Talk, Few Big Changes

- **Congress goes back to work next month, but don't expect big policy shifts. Election-year politics will dominate the session.**

- **You can look for an important water resources study and plenty of debate over the housing bill and the highway program.**

Presidential politics will dominate Washington action in 1960.

Probable result: Few major new policies affecting the construction industry will be decided.

There will be a lot of activity, however, that relates to construction—and you can expect Republicans and Democrats to do plenty of talking and planning in areas of importance.

President Eisenhower, entering his last year in office, will put a program before Congress next month—first the State of the Union Message on January 7, then the budget at mid-month.

Major points of Administration economic policy are expected to be these: balance the budget; fight against inflation; delay or space out ambitious welfare projects for the time being.

Democrats in Congress will probably have ideas quite different from the President's, and quite different from each other's. But Congress is not expected to march off in new directions.

Politics will have a particularly strong effect on the Senate, where a half-dozen potential Presidential candidates sit. And the coming session of Congress will have to be a short one, because the Democratic Convention begins on July 11, the Republican Convention soon after. There is also a possibility of a filibuster cutting into the Senate's working time if the civil rights issue comes to a head.

Construction men can expect the important issue of tight money to be joined early in the year when the Administration tries for an increase in the interest rates on long-term U. S. bonds.

The President will present Congress with the biggest peacetime budget in history—$80 billion for programs in the fiscal year starting next July 1.

The budget will include money for new construction starts by the Corps of Engineers and the Bureau of Reclamation. And there will be efforts to get more financing for an expanded highway construction program. But don't expect any big change in the income tax laws, corporate or individual.

The federal government expects a healthy year for construction and for business in general. Here's the outlook for federal activity affecting the major segments of the construction industry.

1. Highways: Mostly Talk

Congressional attention will be focused on the federal-aid highway program next year. But no major changes are expected to result.

Over-all spending for highways is expected to show a major drop. And Congress is sure to debate the question of pumping more money into the federal program. Federal aid is expected to run about $2.8 billion, according to estimates based on present tax levies.

The Administration is expected to ask Congress to boost the federal gasoline tax again by ½ cent a gallon. That would produce an estimated $310 million a year in added revenues. Last year, Congress refused to grant the full 1½ cent a gallon increase in gasoline taxes that the President wanted. It finally approved a one penny a gallon boost—from 3 to 4 cents. Although another tax increase can't be ruled out, it won't come without strong opposition.

Highway investigations will dominate the scene. It is generally conceded that the year for any major revamping of the road program is 1961, when the Bureau of Public Roads is due to report to Congress on who is benefiting from the new roads and what share of their costs the benefactors should be paying.

Hauling the highway program up for inspection in 1960, however, will be Rep. John A. Blatnik's special subcommittee on the federal-aid highway program. Hearings are due next month.

Digging into the financing of the road program will be the House Ways and Means Committee. Chairman Wilbur Mills (D., Ark.) has not announced a formal investigation, but sources close to the committee say it is sure to come.

The White House report on administration of the highway program will be completed in 1960.

Congress must act on primary, secondary, and urban authorizations to states next year for fiscal years 1962 and 1963. In fiscal '61, this amounts to $925 million in federal money matched on a 50-50 basis by states. And it has been increasing by $25 million a year.

Congress must also decide if Hawaii and Alaska are to receive Interstate mileage allocations, and get 90-10 federal-aid money. Since the states were admitted into the Union, they have only received money on a 50-50 matching basis. Interstate authorization, if it comes, will not be large.

Sure to be argued in Congress is the question of raising bridge height clearances from the present 14 ft to 17 ft, if the Department of Defense requests the change. The matter is under study now with a decision expected soon. Months ago, the Army requested the change for national defense reasons. It was approved by the American Association of State Highway Officials, but the Secretary of Commerce sent the matter back to the Secretary of Defense for further review.

The big issue involved is who is going to pay the added cost: $300 million to increase the bridge heights on new construction, and an undetermined sum to rebuild some existing bridges, if this proves necessary.

2. Water Resources: Problems

Probably the most important single item in Congress affecting water resources development is the $200,000 study being compiled by the Senate Special Water Resources Committee. Its objective: to determine the nation's long-range water needs and resources.

– (*Turn the page*)

. . . Air Force construction spending will be cut;

The committee is headed by Sen. Robert S. Kerr (D., Okla.). Its final report will be given to the Senate just before 1960 adjournment.

The group will hold final hearings this spring in Washington after all special studies have been submitted to it. At least two special hearings are expected before then: (1) in Indiana on that state's water needs; (2) on an expected dispute on future hydro-power needs between the Edison Electric Institute and American Public Power Association.

The committee has completed 22 field hearings into special water problems in various parts of the U. S. Here is what witnesses said is needed:

- Speedier federal processing of small watershed funds under Public Law 566.
- An expanded federal program to aid towns in preventing water pollution and in improving water supply facilities (Public Law 660 and Senate bill 13, respectively).
- More research at all government levels on conservation requirements.
- Enactment of the Murray bill (S-2549) to establish a "Natural Resource Council" in the White House and a "Joint Committee on Natural Resources" in Congress.
- More planning to coordinate recreation and fish and wildlife conservation requirements at multipurpose dams.

Although the Kerr committee's final recommendatons won't be completed until the end of the session, the impact of testimony and special studies submitted to it may result in pressure for specific legislation by senators "on the side"—before the report is finished. The real impact of the study will be felt in coming years.

One of the biggest hydro-power projects in years will come up for hearings before the Federal Power Commission in early 1960. The project is High Mountain Sheep Dam. It is the second proposal by Pacific Northwest Power Co. for a hydro project on the Middle Snake River below Hells Canyon. The present project would cost $178 million, produce nearly 2-million kw, and impound a 17,200 acre lake. The 690-ft dam would back water up to the tailwater at Idaho Power Co.'s low Hells Canyon Dam.

Three big objections will be raised against the project: (1) it would prevent construction of a similar dam at the Nez Perce site farther downstream—which FPC considers the ideal location; (2) public power advocates will demand the federal government build High Mountain Sheep, if it is to be built; (3) fish conservationists—particularly the Interior Department—will object that the dam could damage migratory fish runs. But the power company has an ace in the hole—the Army Engineers has recommended the project in its recent revised report on the Columbia River Basin.

Higher federal public works construction budget for fiscal year 1961 is almost a foregone conclusion. Principally because of the new starts voted by Congress in late 1959, Reclamation is expected to need a $310-million construction budget; Corps of Engineers will ask for a record $1 billion; Rural Electrification Administration will seek a higher-than-1959 allowance for 2% loans—about $260 million; and the Tennessee Valley Authority, now operating on its own $750-million bond financing authorization, has 1.1 million kw of steam and hydro-generated power facilities planned or under construction.

3. Housing: Question of Size

Congress will pass an omnibus housing bill in 1960. Size of the housing package won't be determined until four or five months from now. But certain items in it are specifically ticketed for action.

- FHA insurance of home improvement loans must be extended; otherwise, the program will die October 1.
- College housing loans also require prompt additional authorization; the $250 million voted last September already has been used up.
- And money is still to be appropriated for $50 million of direct loans to finance the housing for the elderly that Congress authorized in the hard-fought 1959 omnibus bill.

What goes into the package will depend on the state of the housing market in early 1960. If mortgage loans dry up and private housing starts plunge to the 1957 level of less than a million, Democrats are ready to push an anti-recession pump-primer on the order of their 1958 model—$1 billion for direct purchase by Fannie Mae of government-backed mortgages.

If money eases and new starts pick up in the early months of the year, Congressional leaders will turn to measures aimed at minimizing the sharp up and down movements in the government-backed home mortgage market.

FHA won't need any additional authorization if applications to the agency continue to fall off as they have in recent months. Congress figured that the $8-billion increase it voted this year would run out about Oct. 1, 1960, forcing the Administration again to bargain with the lawmakers on omnibus housing legislation. But a prolonged dip in applications to FHA would postpone the need for added insurance.

To stabilize the mortgage market, Congress by mid-January will have a report from the Senate Banking Committee on the two-year study of mortgage credit by a subcommittee.

That digest of papers, testimony and correspondence from economists, lenders and borrowers revolves around ideas for a central mortgage bank and a secondary market facility.

It is unlikely that Congress will authorize a national backstop institution of either kind, but the lawmakers might latch on to some allied proposals that aim to lessen mortgage discounting and liberalize mortgage credit.

4. Military: Cuts Coming

Defense economy calls for a cut of about 10% in the budget request for new military construction money. The President's message will ask some $1.2 billion for new facilities, compared with $1.36 billion voted last session.

Air Force construction will take almost the entire cut. But missile facilities won't suffer. New building money for launchers and other ground support equipment is likely to top the $530 million that went to the three services for this type of construction this year. Facilities to serve aircraft won't fare so well.

Army and Navy construction, already cut to the bone, is due to get about as much as this year—some $470 million.

A major change next year calls for the Defense Department to set a fixed figure for construction in the January budget document. For the last few years, the Administration has been late in coming forward with a firm construction request for military works. Budget messages have shown only an estimated sum for defense construction.

Faster work in getting a firm request to Congress should curtail the kind of construction delays that occurred this year, when money for new projects fell three to four months behind schedule. But Congress won't blanket military construction into an over-all money bill for defense. The lawmakers will consider military construction separately, as they have done in recent years.

5. Labor: More Struggles

AFL-CIO building trades leaders are planning to cash in on last year's promises from Congress. The construction union officials are already promoting their annual legislative conference in Washington this spring. Some 3,000 delegates are expected to attend. They'll take up a variety of legislative goals and carry them to Congress.

labor hopes to cash in on Congressional promises

There is one thing in particular that the construction unions want—an amendment to the Taft-Hartley Act that fell out of last year's Landrum-Griffin bill.

Specifically, the craft unions want to end the ban on strikes in construction. The law reads that a craft union cannot picket a construction project and a particular contractor if such picketing affects other contractors. This is now an illegal secondary boycott, the Supreme Court says. In the building industry, it's virtually impossible to set up such picket lines against one employer, because they block other crafts from working for other contractors on the project.

An AFL-CIO building trades amendment to permit project picketing was dropped at the last minute so the Landrum-Griffin bill could be passed. At the time, however, Sen. John F. Kennedy, who promoted reform legislation in the Senate, promised that this construction union demand would come before Congress in the 1960 session.

Even with the impetus from Senator Kennedy, it will be extremely difficult to get this amendment through Congress. After its battle with labor reform last session, the legislators will be reluctant to get into Taft-Hartley again. But construction project picketing already has Congressional fire under it, so anything could happen.

The craft unions will also return to Congress with demands for extending Davis-Bacon minimum wages on government construction contracts. Congress never got to the subject last session. In '60, the craft unions will be pushing first for the necessary hearings on Davis-Bacon in the House and Senate labor committees. But it's likely that time will run out on the session before the subject gets through the Congressional mill.

6. Atomic Energy: A Freeze

Talk in informed quarters is that federal government spending on atomic reactor construction will dip to less than $40 million this year. That relatively small program comes at the same time private industry is claiming there is little profit in the field.

Critics of the Atomic Energy Commission's recently announced objectives for its 10-year reactor development and construction program say they reflect budgetary considerations by an economy-minded Administration—that they do not represent a well-conceived technical program. AEC Chairman John McCone says no increased expenditures for the atomic energy program will be requested for fiscal 1961 beyond the current year's level of $2.78 billion. Thus new construction money included in the upcoming AEC budgetary requests is frozen at about $260 million.

The Administration will urge Congressional approval of a $105-million electron accelerator to be constructed at Stanford University, and it will provide the 60,000 kw of electrical power to operate the two-mile-long accelerator. Construction will probably win Congressional approval.

New ground is sure to be broken in the coming year on construction of a boiling water reactor incorporating nuclear superheat. Mr. McCone told the House Appropriations Committee last summer that construction would begin in 1960 if things went well in the preliminary research and development work being carried on with the $11 million authorized last July.

There also will be a push for a heavy-water natural uranium reactor with a plutonium producing auxiliary feature to fill a gap in the line-up of U. S. reactors—$4.5 million was authorized last year for design studies preliminary to construction of the project this year.

7. Airports: Waiting Game

The Democrats are willing to lie low on the federal-aid-to-airports issue for now—leaving it as a subsidiary issue in the fall elections.

Sen. Mike Monroney (D., Okla.) is chief Senate advocate of an ambitious federal program to meet the needs of the jet age. He still insists that U. S. matching funds should be increased to $100 million per year. But, as an aide to the Senator puts it, "We'll have to wait until we elect a Democratic President."

Under legislation passed last session, the Federal Aviation Agency is authorized to put out $63 million in federal matching funds in fiscal 1961, beginning next July 1. The airport-by-airport allocations are expected to be announced by the end of February.

FAA Administrator Elwood Quesada has previously announced the rules that will hold: Federal aid will be authorized only for runways, taxiways and other facilities essential to safe operations. And the government won't support construction of runways longer than 10,500 ft (at sea level).

8. Public Buildings: Growth

Appropriations don't tell the story of the increasing tempo of activity in construction of federal buildings. This year, for example, the Public Buildings Service of the General Services Administration needed no new construction money.

Using carry-over funds, the agency already has awarded in the first half of the fiscal year 23 construction contracts valued at $79.3 million for projects that have a total estimated cost of $135.4 million.

In the second half, ending June 30, PBS plans to award 11 more contracts on projects having a total worth of $24.5 million.

Scheduled for award in fiscal 1961, starting next July 1, are four more projects for which money has already been appropriated. Total cost of these projects is $33.9 million.

GSA also has 25 upcoming projects valued over-all at more than $500 million. Congress will certainly vote some construction money for them at the next session. Site and planning money for all 25 projects already is in the GSA till, and contract plans for the entire list will be completed before the end of fiscal 1961. Eight of the projects worth $89 million already have Congressional authorization, and Congress will give renewed approval to 17 others, valued at $417 million, within the first few months of the new session.

9. Sewerage: More Funds?

Chances are improving for increased spending on treatment works. The House has passed a bill doubling the annual authorization from $50 million a year to $100 million; the Senate has cut this to $80 million. A conference committee, meeting soon after Congress reconvenes, will probably settle quickly on a figure in between.

Last year the Administration promised a veto. This year, with a budget surplus in the offing and considerable pressure from local communities, the Administration may try to work out a compromise. The President would still probably veto a bill providing a big increase, but might accept a lesser figure and perhaps additional research.

Actual allocation for the past two years has been $45 million each year. It will probably continue at the same level unless the new bill is passed. Requests for the matching grants always exceed the amount available.

Next Issue: January 7

ENR will not be published next week. The current issue is the fourth this month, so all regular monthly features have appeared for December. The first 1960 issue will be dated January 7. In the meantime, the editors of ENR wish you a happy and prosperous New Year.

Columbia River Plan Gets Big Boost

U.S.-Canadian development of the Columbia River moved closer to reality last week. The International Joint Commission completed the ground rules on which the two countries will work out an agreement for the basin-wide job.

Canada gets her way on most points, but the U.S. also stands to gain. Sketchily and unofficially revealed, the principles would:

- Guarantee Canada's right to develop her portion of the Columbia as she wishes, but assure the U.S. that the river won't be diverted into any other watershed so long as the U.S. makes optimum use of the water.
- Cast some doubt on the future of the authorized Libby Dam project in the U.S.
- Give Canada half the additional power that her upstream river regulation will enable U.S. plants to generate.
- Call for cash payments to Canada for 50% of the flood-control benefit derived by the U.S. from Canadian storage over a term of years.

If plans for cooperative development of the Columbia advance as fast next year as they have this year, Canada will start work on her $300-million Mica Creek project in 1961. The IJC took only 11 months to work up the principles just announced. The body was assigned the task last January.

There won't be much top-level quibbling over the principles when the U.S. State Department and the Canadian Ministry of External Affairs sit down to work out the final agreement. Both of the foreign offices have kept in close touch with the IJC discussions while in progress.

Canada's unilateral control of development north of the border could pose a threat to one long-delayed Columbia Basin project in the U.S.—Libby Dam on the Kootenai River in Montana.

On the basis of recent recommendations to the IJC by its International Engineering Board on the Columbia, Canada has three choices for upper Kootenai development. Two of these involve partial diversion of the Kootenai into the Columbia's headwaters before the Kootenai makes its southward loop through the U.S. The third would permit presently contemplated development (ENR Mar. 26, p. 27). One of the diversion alternates would make Libby Dam uneconomic.

The Libby angle could drop a Congressional monkey wrench into the whole Columbia plan. Any U.S. administration is unlikely to commit the country without the approval of Congress; and the two Montana senators, Interior Committee Chairman James Murray and Foreign Relations Committeeman Mike Mansfield, have the power to kill any proposal that cuts the ground from under Libby. Both are Democrats.

Luckily, benefits to Canada from the three alternate developments on the Kootenai don't differ a great deal in magnitude.

Potential flood loss prevented by Canadian storage on the Columbia would be figured actuarially and repaid for a number of years (the IJC has suggested 35). On this basis, Canada would receive $4 million to $5 million a year.

The IJC announcement on Columbia Basin principles won't affect the position of either British Columbia or the Peace River Development Co. on plans for private development of the Peace River. That's what ENR learned last week from British Columbia Premier W. A. C. Bennett and Peace River Development Co. President W. C. Mainwaring.

Some reports out of Canada have suggested that the federal government in Ottawa wants to speed up a Columbia agreement with the U.S. and get started on the work to forestall what it considers to be rival development of the Peace River by the Wenner-Gren group.

Premier Bennett reiterated his contention that British Columbia needs integrated development of the two rivers. Mr. Mainwaring said his group will go ahead with its application (ENR Dec. 17, p. 45).

Feather River Aqueducts Feasible, But . . .

California's plans for an aqueduct system for the huge Feather River project have been confirmed by a board of consulting engineers.

Dissent by one member of the board may, however, further undermine the already shaky prospects for voter approval next fall of a $1.75-billion bond issue to finance the project.

In the report presented to California's water resource director Harvey Banks, a six-man board made these points:

- The aqueduct system is feasible from an engineering standpoint.
- Estimates of water needs and of construction costs are reasonable.
- The project can be self-supporting.
- Further detailed study is needed in several areas, particularly regarding staging and timing of aqueduct construction.
- Direct steam drive for the high-lift pumps involved may not be reliable (ENR Mar. 12, p. 23).

A note of controversy crept into release of the report when it was revealed that a seventh member of the board, Adolph Ackerman of Madison, Wis., did not sign it. Indications are that he will submit a minority report attacking financial feasibility of the proposed bond issue. Apparently Mr. Ackerman did not make his intentions clear to the rest of the board or to Mr. Banks.

Mr. Banks said the consulting board had the assignment of issuing an engineering and physical features study of the aqueduct system south of the Sacramento-San Joaquin delta and at no time was asked nor did the board suggest that the financial feasibility be considered.

Chairman of the consulting board was Ralph Tudor, San Francisco consulting engineer and former Undersecretary of the Interior. Other members signing the report were A. H. Ayers, John S. Longwell, Carl R. Rankin, Roger Rhoades and David Weeks.

The aqueduct system endorsed by the board would handle 5.5 million acre-ft a year 60 years from now. Of this amount, 3.5 million acre-ft would be lifted more than 2,000 ft to across the Tehachapi Mountains. First delivery to the San Joaquin Valley is planned for 1965 and first delivery to southern California in 1971.

The selected route, although involving more pump lift, was favored over a route closer to the coast and another farther inland primarily due to economies that would be realized in distribution. The route is being located at a high level to prevent tunneling through earthquake faults—these are to be crossed by open canals instead. Many tunnels are involved, however. Detailed studies of tunneling costs will help in the location work (ENR Dec. 17, p. 64).

The consultants point out the need for much additional study of pumping and power recovery. They suggest that the best solution for the power demands would be one that takes maximum advantage of the integrated facilities of the public utilities in the area. Such a system would use, insofar as possible, lower-valued utility-generated off-peak power for pumping, and would furnish higher-valued power for sale on the southern California down slopes.

Raise for U.S. Engineers?

Another salary boost for government engineers is in the offing. The Civil Service Commission is asking agency heads if a step-up in starting salaries to the maximums permitted under existing law would help the agencies in recruiting engineering school graduates.

An increase in starting salaries would mean a boost for many other engineer employees as well. When starting salaries are raised, all lower-paid engineers in the same grade automatically move up to the new level.

Depending on their scholastic records, engineer graduates start in Grade 5 or Grade 7. Current thinking calls for a $450 increase in starting salaries: The average graduate would move up from $4,490, to $4,940; the superior graduate from $5,430 to $5,880.

Gains resulting from the government's 1958 boosts in engineer starting salaries are wearing off, the commission fears. Government agencies got 31% of the engineer graduates to whom they made firm offers last summer, compared with 37% the year before.

Industry, by contrast, obtained 43% acceptance in 1959, just 3% below its 1958 return. But industry's starting salaries last summer had gone up to an estimated $5,800 to $6,200. Further, the government experts look for a 2% to 4% increase by industry in salaries offered to engineer graduates next summer.

Civil Service finds that low salaries are the reason given by 53% of all engineers who turn down government jobs.

Federal officials would like to improve the attractiveness of engineer salaries at all levels of government service. This can be done readily and effectively under existing law by raising the starting salaries for professional engineers in the higher grades as well as for engineer graduates in Grades 5 and 7. That is what the commission did in 1958.

Airport Plan Draws Heavy Fire

The Port of New York Authority encountered hot and heavy opposition when it finally made a formal disclosure of its much-rumored plans for a $220-million jet airport in nothern New Jersey (ENR Dec. 10, p. 28).

Over 1,000 telegrams, postcards, letters and petition signatures were sent to New Jersey Gov. Robert B. Meyner on the proposed airport; only 10 favored the plan.

A large number of research laboratories in the neighborhood of the proposed Morris County site oppose the airport on the grounds that the jet noises will upset the delicate instruments they use.

The authority wants to build four 12,000-ft runways on a 10,000-acre site in what is now known as the Great Swamp. The marsh is fairly level and can be made suitable for runway construction at what PNYA terms a "reasonable cost." It is about 25 miles west of Times Square.

The Morris County location is the best of 15 sites investigated during the past three years, says the authority.

Austin J. Tobin, executive director of the authority, argues in favor of the north New Jersey airport because:

- The four existing airports—LaGuardia, Idlewild, Newark and Teterboro—will be inadequate to handle expanding traffic by 1965.
- Air travel to and from the New York metropolitan region will increase 350% by 1975 and air freight by 450%.
- There is no practical way to expand at any of the Authority's four airports.
- Only short-haul and medium-haul air service is available at Newark.

But Morris County, N. J., is outside the jurisdiction of the authority and the governors and legislatures of New Jersey and New York will have to support the proposal before it ever gets to the bid-advertising stage.

Regular Construction Wins Over Alternates

Conventional reinforced concrete construction was the bid choice over precast and lift-slab methods last week for a three-building, 456-unit housing project in Chicago. The project, for the Chicago Housing Authority, is the Robert H. Brooks Homes Extension (ENR Nov. 12, p. 32).

The authority invited bids on three construction alternates:

- Lift-slab floors and precast concrete walls and partitions.
- Conventional reinforced concrete.
- Lift-slab floors with conventionally formed concrete walls and partitions.

S. N. Nielson Co., Chicago, submitted a low bid based on the second alternate. Its figure was $5,184,000.

New York Zoning

Final draft follows path laid out by consultants

The final draft of a new zoning code for New York City generally follows proposals made for the city's Planning Commission by Voorhees Walker Smith Smith & Haines, New York architects (ENR Feb. 19, p. 27), but with many specific changes.

The preliminary zoning proposal had stirred a controversy between real estate interests and architect groups. Real estate people charged the proposed zoning would stifle construction in the metropolitan area; architects supported the plan with certain modifications and additions (ENR Dec. 17, p. 45).

In introducing the final draft this week, Planning Commission Chairman James Felt in effect challenged the opposition from real estate men: "New York City can most certainly continue to grow and build with this new zoning proposal," he said.

The final draft differs from the preliminary proposals in these respects:

- Keeps enforcement of the code under the Department of Buildings without a zoning administrator.
- Adopts the one-map zoning system of the original proposal, but adds to it parking regulations in residential areas.
- Increases total floor-area allowances in both commercial and high-rise residential areas to encourage plazas and arcades. This parallels recommendations made by New York architects.
- Encourages commercial building on north-south avenues in Manhattan beyond the original proposal, but protects existing low density residential building on east side crosstown streets.
- Encourages private redevelopment of slum areas by increasing building bulk allowance over the original proposal.
- Reduces the requirements for off-street parking, but does not eliminate off-street parking requirements downtown as local architects wanted.
- Expresses density regulations for residential areas in a single factor of required lot area per room.
- Adds a residential category to fill a wide gap between the two top proposed types of district. This will allow greater flexibility for real estate development in the Manhattan area.
- Protects the single residence and row-house character of areas in Queens, Brooklyn and Staten Island.
- Places a population lid of 11.8 million on the city instead of the 10.9-million figure in the proposal.

The new zoning will take effect one year after approval by the Board of Estimate, but in no case before July 1, 1961.

Surprised tears are Melissa's response to . . .

. . . the news that she will visit the Vatican . . .

For Melissa: Tears and a Trip;

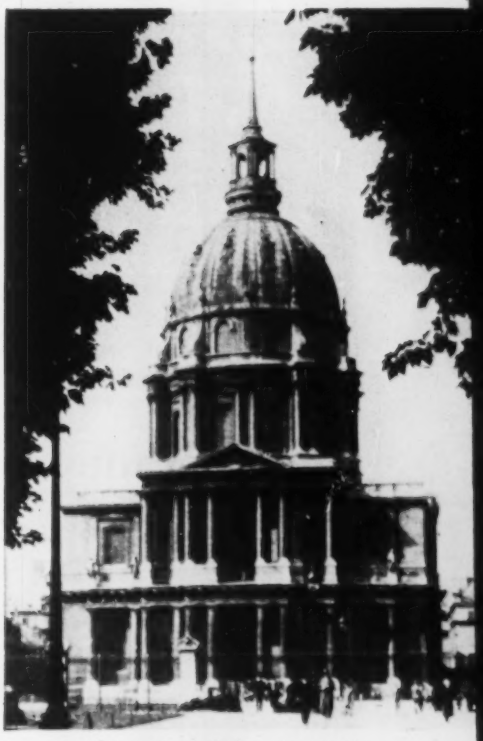
For most days of the year we think of the construction industry in terms of bids and contracts and methods and and machinery, of feverish activity, of money made and lost. But this is the season to reflect on what it's really all about.

Supposing, for example, someone took away your slide rule, crumpled up your plans, and asked, "How are the famous domes of the world symbolic of man's progress?" You would probably be taken back, as would we.

But not 12-year-old Melissa Hicks of Pittsburgh, whose answer to that question won her a trip to visit some of the world's most famous domes en route to the Holy Land for Christmas, in a contest sponsored by the Pittsburgh Progress Committee. We herewith submit Melissa's short essay.

Christmas Day will find Melissa in Bethlehem at the Church of the Nativity.

see St. Paul's Cathedral in London . . .



. . . and Les Invalides in Paris.

For You: A Christmas Story

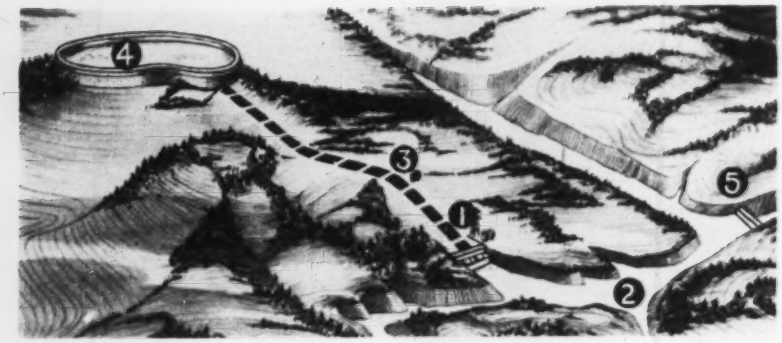
What Melissa Wrote . . .

Viewing the seven great domes, one sees the gradual change from the sharp pointed spires of the Church of the Nativity to the smooth curve of Pittsburgh's Public Auditorium. Just as the base of the dome has expanded, man's way of thinking has broadened. So man has progressed.

The birth of Christianity opened for men new horizons. This is represented by the three church domes in Bethlehem, Rome and London. Then, as man progressed, he not only thought of himself, but of his fellow men. Care of his "brother" is reflected in the dome on Les Invalides in Paris. When people with a burning desire for freedom founded the United States of America, the famous dome in Washington stands as its symbol. After World War II, man's thinking stretched out to all four corners of the world. The dome symbolic of international peace and understanding is located on the General Assembly Building, United Nations, New York City. Now, in 1959, man's outlook has grown to include concern for the use of leisure time. Our city's Auditorium will symbolize this. These seven domes truly represent man's progress under the divine guidance of the great Architect of the Universe.

St. Sophias's in Istanbul and . . .

Rome's Pantheon are other great domes



SURPLUS NIGHTTIME ENERGY runs reversible pump turbines (1) to raise water from lower pool (2) through tunnel (3) to elevated pool (4). Water flows back through the turbines during the day, generating 350,000 kw. Low dam (5) impounds lower pool.

Biggest Pumped-Storage Project

Union Electric Co. of St. Louis has let a $20-million contract for construction of the biggest pumped-storage electric generating plant in the country. Plant capacity will be 350,000 kw. Cost will total $50 million.

The first contract went to a joint venture of Fruin-Colnon Contracting Co. of St. Louis and Utah Construction Co. of San Francisco.

The development will defer for two years the necessity of starting work on a new steam generating plant, which would cost more, according to George P. Gamble, operating vice president of the utility. The pumped-storage plant will also result in other major economies for the system, he says.

The project is not connected with a natural hydroelectric resource. It will be used simply to store energy available at night from otherwise idle steam power plant capacity. The energy will be released during the daytime, when demand is higher.

Two small pools will be built for the project—a 370-acre one on the east fork of the Black River at Taum Sauk Creek, and a 50-acre one 1,000 ft higher, on top of a nearby hill.

Reversible hydraulic turbines at the lower pool will operate as pumps at night. Using power from steam generating plants in the St. Louis area, they will pump water from the lower pool to the higher. The water will flow back through the turbines to the lower pool during the daytime, adding 350,000 kw to the peak power capacity of the utility system.

The reversible turbines will consume about 50% more energy in pumping than they return to the system when generating. But the relative values of day and night power justify this ratio.

The pools will have no recreational value. The daily exchange of water between them will cause their levels to fluctuate too much.

Besides the pools and the powerhouse, the project includes a mile-long 26-ft tunnel between the two pools, and transmission lines connecting with the Union Electric system.

Probably the two biggest pumped-storage generating plants in North America now are at Niagara Falls. The New York State Power Authority is building a 240,000-kw pumped-storage plant (Tuscarora Generating Station) as part of the state's $700-million Niagara Power Project. The Ontario Hydro-Electric Commission has in operation a 175,000-kw pumped-storage plant as part of the province's Sir Adam Beck—Niagara Generating Plant No. 2.

Contractor Sues Over Radioactive Building

A demolition contractor has filed suit against a Baltimore building owner who, the contractor charges, withheld information about the radioactive contamination of his building.

Demolition halted when a city inspector notified wreckers that the building was radioactive. Although the demolition contract came through official channels, it apparently was not until several days later that city officials discovered reports on the building's contamination.

The four-story brick townhouse was the scene of pioneering work in radiological research over 30 years ago by Dr. Howard A. Kelly.

The U. S. Public Health Service and later the Atomic Energy Commission had reported dangerous radiation levels after inspections made several years ago. Public Health inspectors said water used to put out a fire in 1951 spread dangerous quantities of radium.

Precautionary measures recommended by the AEC included burning the timber flooring under AEC supervision and burying the ashes.

The demolition contractor, State Wrecking Co. of Baltimore, raised its estimate from $3,150 to $16,950 after being warned of the contamination. It filed suit to recover $6,000 damages after the owner refused to amend the contract.

Around the Country . . .

• **Faster to the sea**—The recently opened Julia Tuttle Causeway, a three-mile, six-lane link between Miami and Miami Beach, has cut driving time between the two cities by 20 minutes. The causeway cost $14 million and took two years to construct.

• **Turnpike treachery**—The first year of operation of the Richmond-Petersburg Turnpike has caused a 40% drop in gross receipts for businesses along the by-passed U. S. 1-U. S. 301, according to a study sponsored by the Virginia Travel Council. The survey also reported reduced employment, investment value and taxes.

• **A sensitive spot**—Pennsylvania's Republican-dominated State Senate rejected a program to acquire 491 miles of local highways for the state when it was linked with a proposal to increase Pennsylvania's five-cent-a-gallon gas tax to six cents. A similar bill passed the lower house of the legislature, which has a Democratic majority.

• **Science center**—Minneapolis will be the site of a scientific industry park. Buildings for electronic manufacturers and other technological industries will be constructed on the 200-acre tract by International Properties, Inc., Minneapolis.

• **Cabinet spot for cities?**—A cabinet-level post representing urban areas is being proposed again, this time by the mayors of Chicago, Los Angeles and nine other cities. The department would handle problems in housing, traffic, and urban redevelopment.

• **Union headquarters**—John A. Volpe Construction Co. of Malden, Mass., will build a $3.5-million, six-story, reinforced concrete headquarters building in Washington, D. C., for the United Brotherhood of Carpenters and Joiners.

• **Minnesota hospital**—Ellerbe & Co., St. Paul architects, will design the $16-million St. Paul-Ramsey County Hospital, Minnesota.

✔ LORAIN Moto-Loader

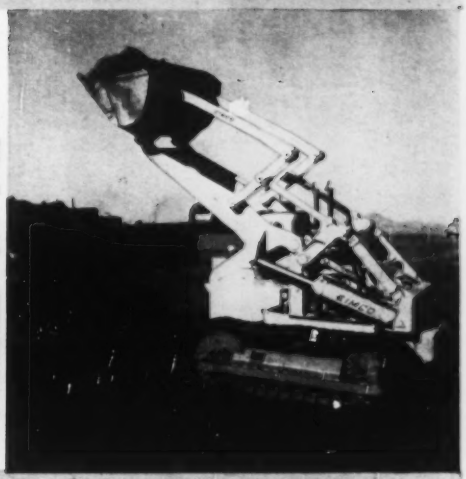
✔ ALLIS-CHALMERS TL-20 Tracto-Loader

... also

- ✔ CATERPILLAR
- ✔ CLARK-MICHIGAN
- ✔ GALION
- ✔ HUBER-WARCO
- ✔ INTERNATIONAL HARVESTER
- ✔ YALE & TOWNE

and others

✔ LeTOURNEAU-WESTINGHOUSE Haulpak

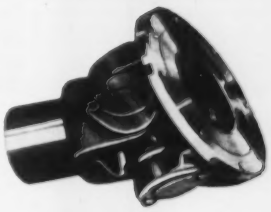


✔ EIMCO 126 Front End Loader

Notice the firms now using BLOOD BROTHERS Drive Lines by ROCKWELL-STANDARD

Here are names you know—outstanding builders of earthmoving, loading and handling equipment. They must—and they do—build for brute strength, efficiency and dependability.

So it's significant that the engineers of *each firm* have independently approved one component in common: Blood Brothers Universal Joints.



Used on main drive lines, power steering assemblies and accessory p.t.o.'s, these products of Rockwell-Standard can add excellence to machines you build, too.

Contact Rockwell-Standard's engineers on your next project—their experience may save you money!

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ROCKWELL R STANDARD BB UNIVERSAL JOINTS

Blood Brothers Universal Joints

ALLEGAN, MICHIGAN

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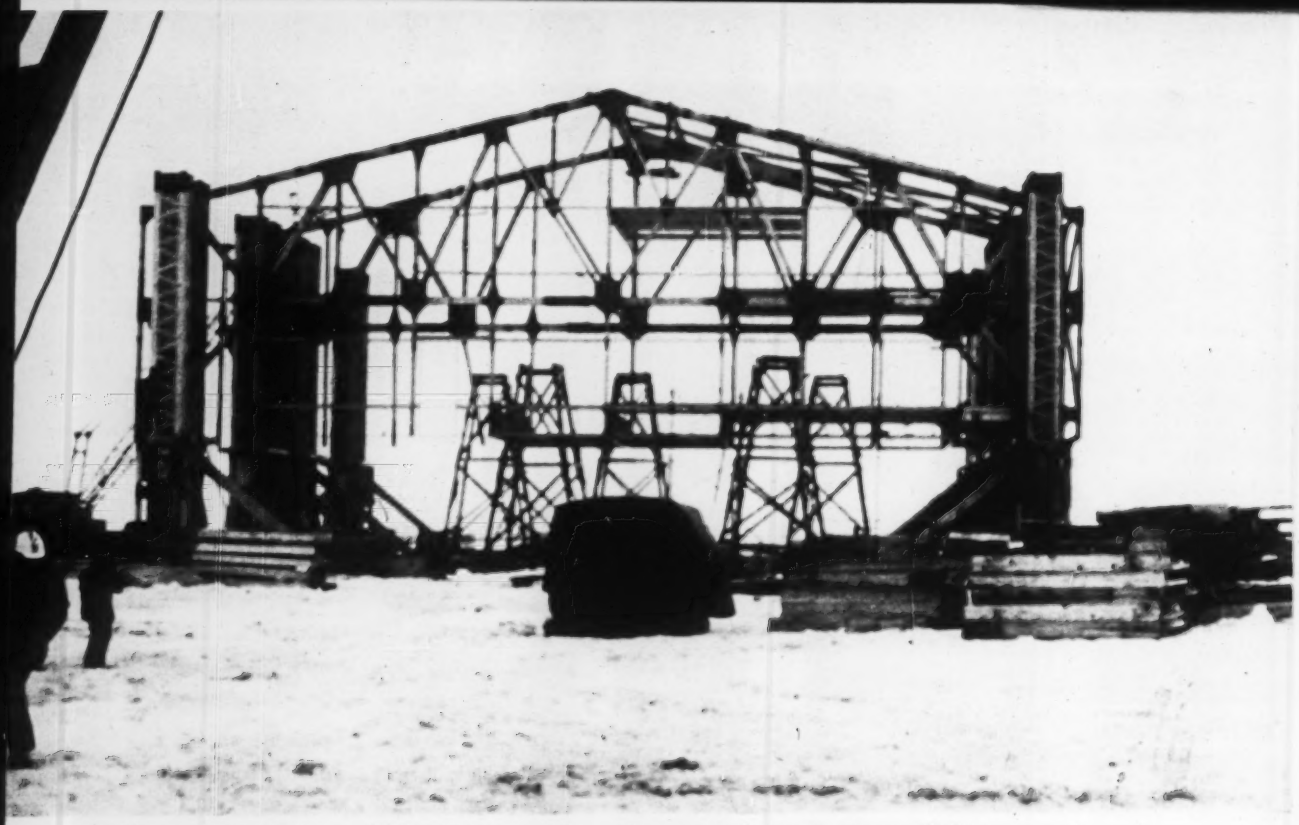


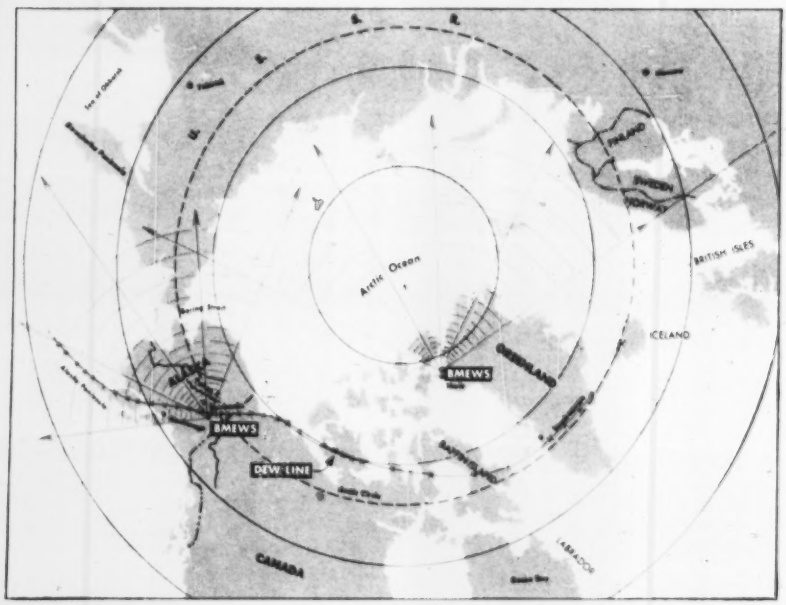
This entire building will be lifted up the columns to keep it above drifting snow.

To Warn Against Attack: Unusual

The U. S. is constructing some remarkable structures in the Arctic as part of a continuing effort to keep our defensive warning systems abreast of fast-changing offensive weapons.

The Distant Early Warning (DEW) Line is growing longer; new stations in Greenland are increasing the likelihood that hostile bombers approaching the North American continent over the polar route will be detected. At the same time, and in this same Arctic region, construction is under way on a Ballistic Missile Early Warning System (BMEWS) station in anticipation of the time when bomber defense will be obsolete. Two other BMEWS stations will be built in Alaska and England.

Highlighting new DEW Line construction are two large steel buildings that jack themselves up over drifting snow. Their only foundation is Greenland's ice cap. At the BMEWS site, spaced along a mile-long semicircle, are four lace-like steel antennas of unprecedented size and design.

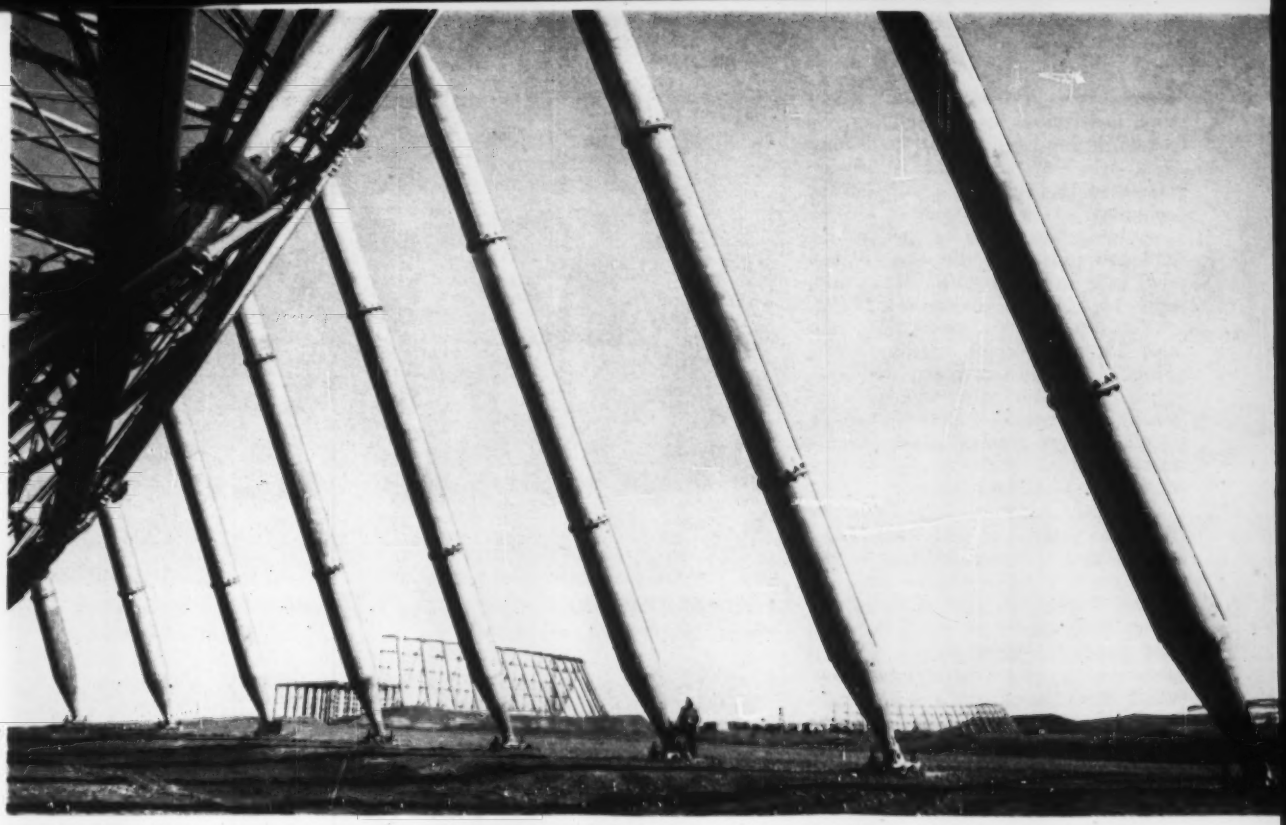


RADAR FENCES face danger areas beyond the North Pole. DEW Line would detect bombers; BMEWS would warn of enemy missiles.

Building On the Ice Cap

The DEW Line, which follows the Arctic Circle from Alaska, terminates now in the east on Baffin Island, across Davis Strait from Greenland. The present project, called DEW East, will extend the line with four stations in Greenland and one in Iceland. Two of the Greenland stations are on the west and east coasts, respectively, but the two others are directly on the ice cap, the farthest 300 miles from Sondrestrom AFB, nearest supply point.

These ice cap stations are the real feature of the DEW East project. They consist of a large main building to house all the electronic equipment, the power plant and the living quarters for



These giant braces prop up a huge missile-detection antenna in Greenland.

Structures Alter Arctic Skyline

a 30-man crew; a smaller "disaster" building for personnel in case of emergency, but normally used for vehicle storage; and the tanks for fuel oil.

At each station the main building will be surmounted by a rotating surveillance antenna enclosed in a 68 ft dia "radome" assembled from triangular units of resin-treated glass fabric framed in glued laminated timber. This relatively rigid type radome is more suitable for these high wind locations than the air-inflated type.

Warnings of the approach of unidentified aircraft brought in through this antenna will be transmitted to other DEW Line stations and to interceptor-plane bases by a special form of radio, which makes it possible to transmit messages far beyond the horizon limit of conventional high frequency radio. This requires other antenna at the DEW Line stations, and the 30 ft dia "dish" type has been chosen for those on the ice cap.

All construction materials and equipment for each of these ice cap stations—close to 6,500 tons—was delivered by air from Sondrestrom AFB in the Air Force's newest workhorse planes—the powerful turbo-prop C-130 Hercules, which handles a 15-ton load. Equipped with skis, they landed close to the building sites.

Few structures were ever as carefully designed for their environment as the main buildings at these stations. They have pitched roofs so the snow will slide off. They are carried high up on their supporting columns so the snow can blow harmlessly beneath without drifting. They can be raised higher on the columns by jacks to maintain clearance above snow accumulations. They are enclosed in metal-faced insulated panels to protect against the 40 below zero temperatures. And they are designed to resist 150-mph winds.

All these environmental features are incorporated in a two-story steel-framed building, 133 ft wide and 144 ft long over-all, without interior columns. On its roof will be a 54-ft-square, 24-ft-high tower that will support the rotating surveillance antenna in the 68-ft-dia radome. Brackets cantilevered from the walls will support four 30-ft-dia dish-type communications antennas.

Four Warren trusses span the width of the building, 120 ft c-c of columns. They are made up of 14-in.-wide-flange members and assembled with 1¼-in.-dia high strength bolts.

They support an upper floor at their bottom chord level, and carry a lower floor suspended on 8-in. wide-flange-section hangers. Lengthwise, the buildings have 45-ft bays at either end, with a 30-ft bay in the center, where the framing for the radome is located. The framing for these two central trusses is unusually heavy, the top chord weighing 342 lb per ft, and the bottom chord, 314 lb.

Large columns are required to carry these building trusses. Each consists of two built-up H-sections spaced 8 ft 4 in. apart (between webs) to provide room between for the unique liftable truss supports.

Because of the annual snow accumulation, the building must be raised 3 ft a year to maintain a design clearance of 19 ft between the snow surface and the first floor.

Each end of each truss is supported by a suspended cradle. It is made up of a girder (two 36-in. rolled sections side by side) hung from heavy I-beam brackets on the inside faces of the column webs by two 5-in.-dia high strength steel rods (see drawing p. 29). The end post of the truss rests on this girder. And installed just above the I-beam brackets, for use when the trusses are being raised, is a motor-driven torque unit. Through a shaft and gearing, the torque unit turns nuts on the 5-in. rods located just above and below the brackets.

The lifting force required at each end of the trusses is supplied by two 350-ton

motor-driven hydraulic jacks. Eight such installations for the building give a total lifting capability of 5,600 tons. The jacks rest on another suspended cradle some 18 ft higher up on the columns.

A heavy bracket is attached to the end post just above the jacks. When the jacks are extended, they push against this bracket and raise the truss.

The jacks and the torque drive unit atop the lower cradle act in unison. Thus as the truss is raised the lower cradle girder and the 5-in. rods on which it is suspended move up with it.

All jacks are operated simultaneously from a central control station to raise the entire building uniformly.

The jacks have a 6¾-in. extension. After this limit is reached, the load of the building is transferred back to the lower cradle and the jacks are retracted. Before another lift can be made, the upper cradle girder on which the jacks rest must be raised 6¾ in. This is done by another torque drive unit, which turns the nuts located just below the girder and thus moves it up the 5-in. rods on which it is suspended.

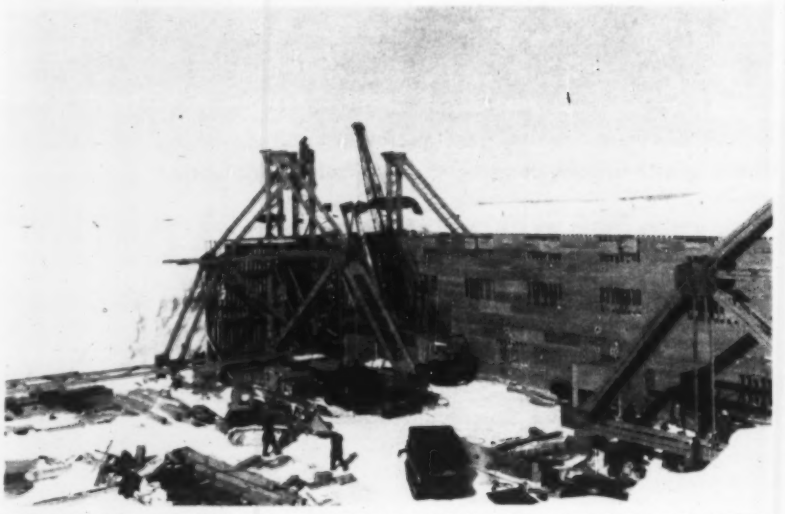
This cycle of operations is repeated until the full 3-ft lift has been accomplished.

Before the next annual lifting operation, the brackets must be raised and bolted to the columns higher up. This is accomplished by running the torque drive units in reverse. The jacking cradle brackets will be raised first while the building is carried by the lower cradles. Then the load will be transferred and the lower cradle brackets raised. Finally, the building will be returned to the lower cradle, its normal position.

The columns must, of course, be long enough to accommodate these annual raising operations. Since the building was designed for a life of about 10 years, the columns must extend nearly 30 ft above the initial height of the truss supports. As a result, the length of the columns from their base plate (28 ft 8 in. beneath the present snowline) to their ultimate top will be 99 ft 8 in. In the accompanying views, the top 20 ft of the columns has not yet been erected.

As another result of environmental design, these buildings have almost as much steel below the snowline as above—900 tons compared to 1,200. Over a quarter of the column steel is under the snow. And, just above the column bases, heavy trusses extend entirely around the perimeter of the building as well as across it between footings. These under-snow transverse trusses tie the footings together and reduce column bending moments by introducing a resistant couple at the bottom section of the columns.

BUILDING FRAMING is characterized by huge double columns within which liftable columns constitute the truss supports.



FOUNDATION FRAMING for a DEW Line building is set in a hole in Greenland's ice cap. Wall trusses were boxed in for access through snow backfill.

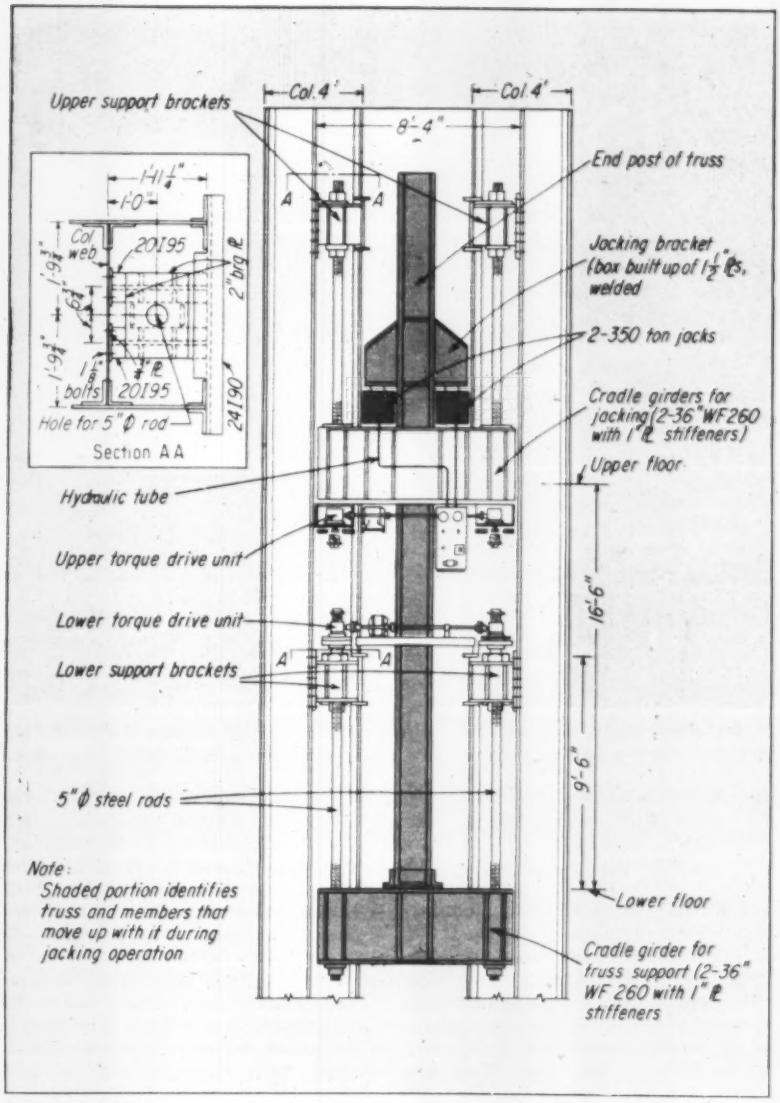
Some 35,000 cu yd of snow had to be excavated to open up the building site for the under-snow work. At each column location, 34 ft 5 in. below the surface, workmen then placed a timber mat of 6 x 12s covering a 23x30-ft area of undisturbed snow. On each mat they erected a grillage consisting of a layer of 36-in. rolled girder beams on top of a similar layer of rolled beams 33 in. deep. With this arrangement, each footing was considered to have a 4,000 lb per sq ft allowable bearing pressure.

With footings prepared, workmen then erected lower column sections and assembled the heavy under-snow trusses. They connected these trusses to the columns at both the top and bottom chord levels by sliding steel collars equipped with set screws to permit adjustment in case the footings settle.

Another special requirement was boxing in the peripheral trusses with timber to permit access for any necessary adjustments to the truss-to-column collar connections. The boxing also eliminates any possibility of secondary stresses in the truss members from snow pressure.

With under-snow construction complete, the excavation was backfilled and work on the superstructure began. Using crawler cranes and skid-mounted timber flasework towers, the contractor worked two 10-hour shifts, all in the daylight of Arctic summer, to close-in the building by early September. At the same time, work was also carried on for water supply, sewage disposal and fuel storage installations.

For the water supply, a slackline ex-



MOVABLE TRUSS SUPPORT is a pair of cradles. Truss weight, normally on lower cradle, is transferred to upper cradle by jacks when lift is under way.

cavator was installed from the building to an anchor about 500 ft away. Using the bucket on this slackline, snow will be pulled to a hopper on the side of the building, then fed to the snow melter. The melter will produce 3,000 gal of water (a two-day supply) in four hours.

Principal facility for sewage disposal is a wood stave pipe. It will carry the sewage about 500 ft away from the building, where the blowing snow will cover it. Within the building, sewage will be collected in sump tanks. Float-actuated pumps will move it to the discharge point on the building wall 36 ft above the snow surface. Here it will flow into a vertical section of 5-in. wood stave pipe telescoped into an 8-in. section that joins the out-fall. The pipe telescoping detail takes care of any necessary jacking of the building.

Finally, for the storage of diesel fuel, four 100,000 gal tanks were buried in the snow. The shells of the tanks are designed to resist an external pressure of 10 lb per sq ft, while the roofs are strong enough to carry the 30 ft of snow expected to accumulate in 10 years.

Two pipelines, one a standby, will connect the tanks to the main buildings. Flexible connections are used at both ends of the lines to permit adjustments for settlement, and, at the building end, to allow for jacking. The fuel supply will feed the building power plant, which consists of six 150-kw diesel engine generator sets. Waste heat from these sets, passed through a heat exchanger, will be used to heat the building through a hot water system.

After the DEW Line: BMEWS

Matching the ice cap buildings of the DEW Line in novelty and exceeding them in size are the BMEWS structures planned for the day when the DEW Line will be obsolete. About 2,000 contractor personnel worked around the clock this summer to finish the construction in the shortest possible time. Cost: $100 million, plus $300 million worth of electronic gear.

Most prominent feature of the BMEWS station located in the vicinity of Thule AFB is the antenna of the surveillance radar. Four of these novel structures, each 165 ft high and 400 ft long, dominate the semi-circular site on which eleven buildings of different size and function are spotted. All buildings are connected by an enclosed passageway, which provides a roadway for vehicles and duct space for utility lines.

Four of the BMEWS buildings—one in front of each antenna—house the surveillance radar scanner equipment. Between each antenna is a radar transmitter building. This building is also designed to include, on a huge concrete pedestal extending through the roof, an 84-ft-dia dish-shaped antenna of a tracker radar, which would be placed inside a 140-ft-dia radome.

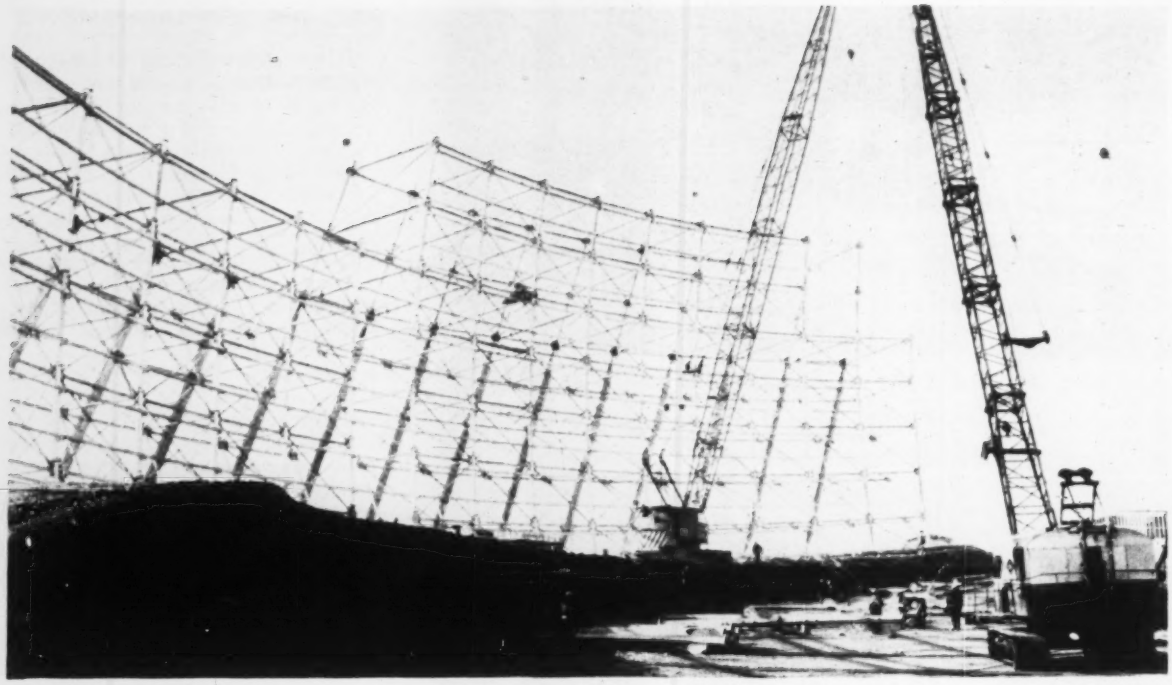
One of the transmitter buildings also contains the computer section and the data processing equipment for the station. It's the largest of the three—150 x 370 ft. But the other two are only slightly smaller. All three will be heated by the waste heat from their electronic equipment.

It is this electronic equipment, of course, to which information from the radar system will be fed for processing. Decisions arrived at from the processed data will be signaled to defense headquarters in the U. S.

The surveillance radar system pulses will originate in the transmitter buildings, then move through the passageway via waveguides (basically, just a pipe) to the scanner buildings. Here the waves will be directed at the huge surveillance antennas by feedhorns (which may be likened to nozzles) and sent out as beams. The equipment is said to have a range of about 3,000 miles.

Here's how the detection process works: Each big surveillance antenna will send out two beams a fixed distance apart vertically. The points at which a missile intersects these beams will give its direction, while the time interval between the intersections will give its speed.

The huge antenna frameworks are the most spectacular feature of the BMEWS station, and unique in every respect. Each antenna consists of twenty vertical trusses spaced 20 ft



TWO LONG BOOM CRANES—one to transfer steel from storage, the other to lift it into place—carried out erection of BMEWS antennas, which are assembled from tubular nickel-steel members having flanged ends for bolted connections.

apart and joined together by a network of struts and diagonal bracing. The top (rear) chord of the trusses is curved, and from the point of greatest truss depth, at the center, 40-in.-dia raker braces extend 70 ft to the ground to shore the framework against wind.

Each of the forty individual footings for each antenna is a massive concrete block with a special shear assembly encased in its top to take the base plates of the steel framework. The antennas have to be accurately placed, so there is provision for both horizontal and vertical adjustment in each base plate.

The antennas are designed to survive a 180-mph wind blowing against the front face when it is solidly covered with ice. More important from an operating standpoint, the antenna design limits maximum deflection under a 90 mph wind to 2.2 in.

The principal members of the trusses, as well as the larger raker braces, are tubular. They are made of nickel steel for strength and corrosion resistance, and are also hot-dip galvanized to give further protection from the weather. The truss members—the smallest 5 in. and the largest 8 in. in diameter—range in length up to 15 ft. The ends of these members are joined in the field by bolting together flanges that have been welded on in the factory. All of the thousands of parts of the antennas were designed for this bolted erection to eliminate the necessity for any welding in the field. Moreover, all of this extensive framework was test erected at the factory of D. S. Kennedy & Co., the designer and fabricator.

The sole purpose of the framing, of course, is to support the reflecting surface, which is the heart of the antenna. This surface, a special Kennedy trademarked product known as Squarex, is a 16-ga ⅜-in. expanded metal mesh made with approximately square openings. Such openings, in contrast to oblong mesh openings, are insensitive to polarization of the radio wave. They thus provide uniform reflectivity to all planes in which the radio wave may appear.

The mesh is welded in the factory to electro-galvanized tubular steel frames 7 ft long and 2½ ft high. More than 3,000 of these are required for each antenna. The frames are bolted to stringers along the front of the antennas.

Erection of the antennas in the field was carried out with a crawler crane equipped with a 200-ft boom and jib.

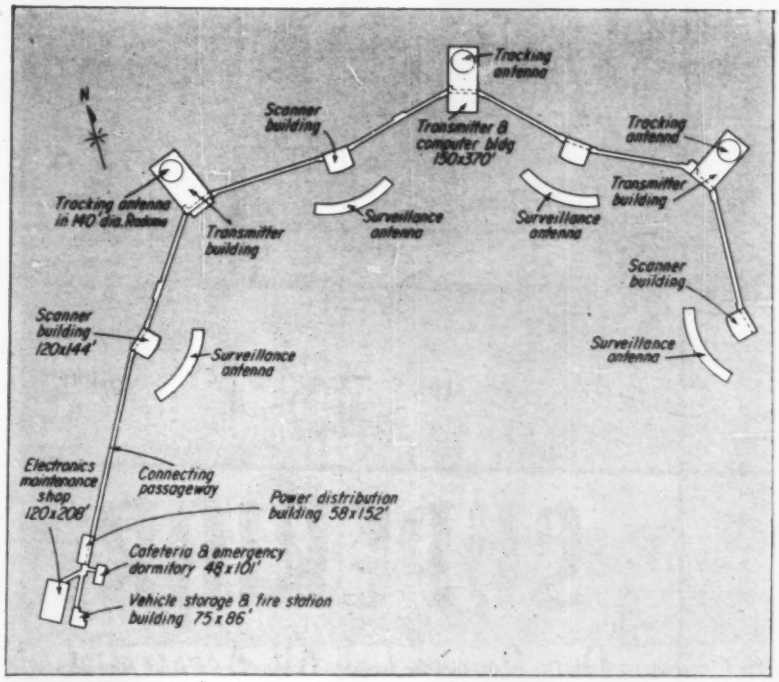
All of the BMEWS station buildings are framed in structural steel in normal arrangements of beams, columns and trusses. Foundations, floors and walls, however, are quite out of the ordinary.

Because of the ever-present permafrost, for example, all but one of the buildings, which was on rock, had to be placed on pads of non-frost-susceptible material. Generally the pads were about 3½ ft thick, but for the heavy tracker antenna foundations the thickness was increased to 15 ft. The large amount of crushed rock required for these pads was prepared and stockpiled last year ready for an early spring start.

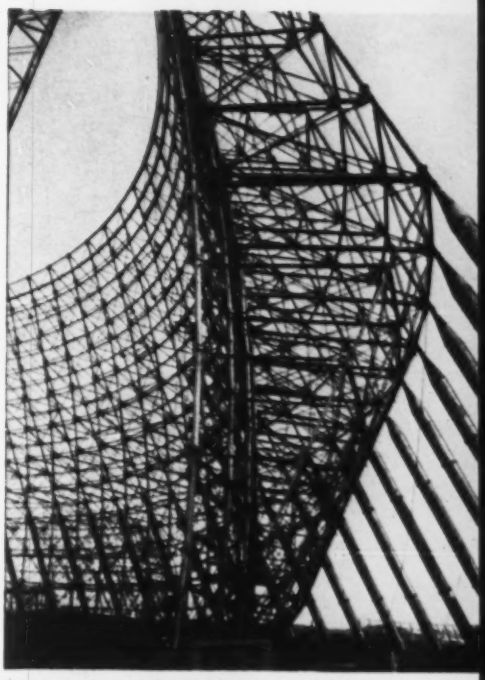
Work began so early, in fact, that the pad construction was done under cover to prevent ice crystals from forming. A large air-inflated tent was tried, but it had so much head room that the heat from the salamanders rose too high to be effective on the pad. Thereafter, the pad material was placed under canvas stretched across oil drums. On some of the pads, heat was applied by an ordinary asphalt road planer, and this proved effective.

After the pads were in place, they were covered by a concrete leveling slab. Then the structural floor slab was constructed. This structural slab is of the hollow pan type, permitting air to circulate beneath. This insulates the foundation from the heat of the building. As further protection, however, the structural slab is covered with a layer of foam insulation before the wearing surface slab is placed.

The floor incorporates still another layer of material. This consists of copper mesh screening with soldered joints. The screening is placed below the wearing surface slab and on top of the foam insulation. Its purpose is to ground the buildings electrically as protection against the hazards of exposure to the highly charged atmosphere around the station. The ground lines from the buildings are run all the way down the mountain to terminals in ocean water. Reason: It is doubtful that positive



BMEWS SITE stretches in an arc more than a mile long from service area buildings at left to operational buildings next to antennas.



BOW-SHAPED TRUSSES—20 in all—make up each missile detection antenna.

grounding can be obtained in permafrost.

To complete the shielding, the copper mesh in the floors is soldered to continuous welded steel panels that constitute the interior surface of the walls and ceilings of the buildings. A complete envelope of shielding therefore encloses all the structures. Outside of the shielding is the normal insulated metal panel wall and roof.

The passageway between buildings is also provided with this kind of shielding and grounding. The passageway entrance, which is in the power distribution building, is in the form of a radio frequency lock. This insures that the electronic equipment in the buildings is completely isolated from outside interference.

To keep this complex system operating requires a high degree of support activity. At the BMEWS site this is concentrated in four service buildings, which are grouped together at the extreme south end of the passageway some distance from the radar buildings. The largest is the electronics maintainance shop, which includes a mezzanine floor for storage.

Most vital from an operating standpoint is the power distribution building. It receives current via an overhead transmisison line from a 37,500-kw floating power plant—originally converted from a cargo ship by the U. S. Navy, and recently prepared for Arctic service by the Air Force. This building also houses two emergency standby generators, two boilers for heating the service buildings and the hydropneumatic apparatus used to distribute the water supply.

Another service building is a two-story emergency dormitory building, which also houses a cafeteria.

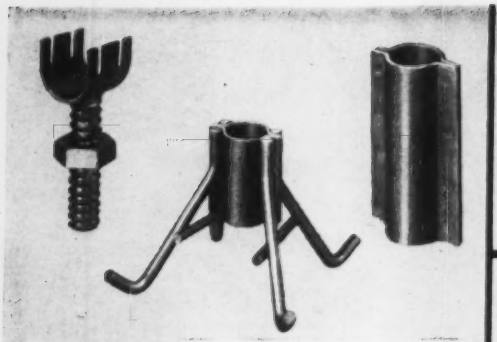
The dormitory at BMEWS, however, is for emergency use only. Normally the personnel will be based at Thule, where much other BMEWS support activity will also be concentrated.

Specifically for BMEWS, five three-story barracks are under construction at Thule. Other new BMEWS support facilities include mess halls, warehouses, garages and an administration building.

All of this work, both DEW Line and BMEWS, is the responsibility of the U. S. Air Force Civil Engineers. The Army's Corps of Engineers, acting as the Air Force's construction agency, has direct supervision of the jobs. Metcalf & Eddy of Boston is the architect-engineer.

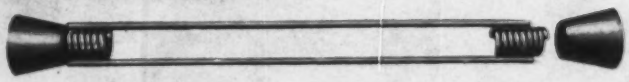
On the DEW Line ice cap work, Peter Kiewit Sons' Co. of Omaha is the contractor. The BMEWS job is being handled by a combine made up of Kiewit plus S. J. Grove and Sons' Co., Minneapolis, Condon-Cunningham, Inc., Omaha, and Al Johnson Construction Co., Minneapolis. The Western Electric Co. is the prime "systems" contractor on the DEW Line, and RCA on BMEWS.

SHOE ADJUSTMENTS on the antenna had to assure absolute accurate alignment.

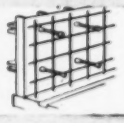


HEAVY-DUTY SCREED SUPPORTS

Overpasses and Underpasses

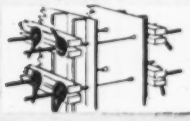


THREADED COIL TIES



Engineering Structures

TILT LOCK CLAMPS



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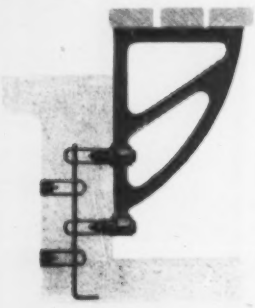
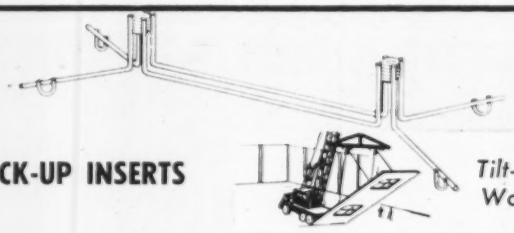


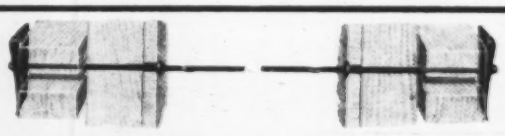
RISER-FRAMES

Stadiums and Grandstands

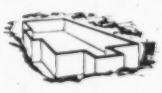


PICK-UP INSERTS

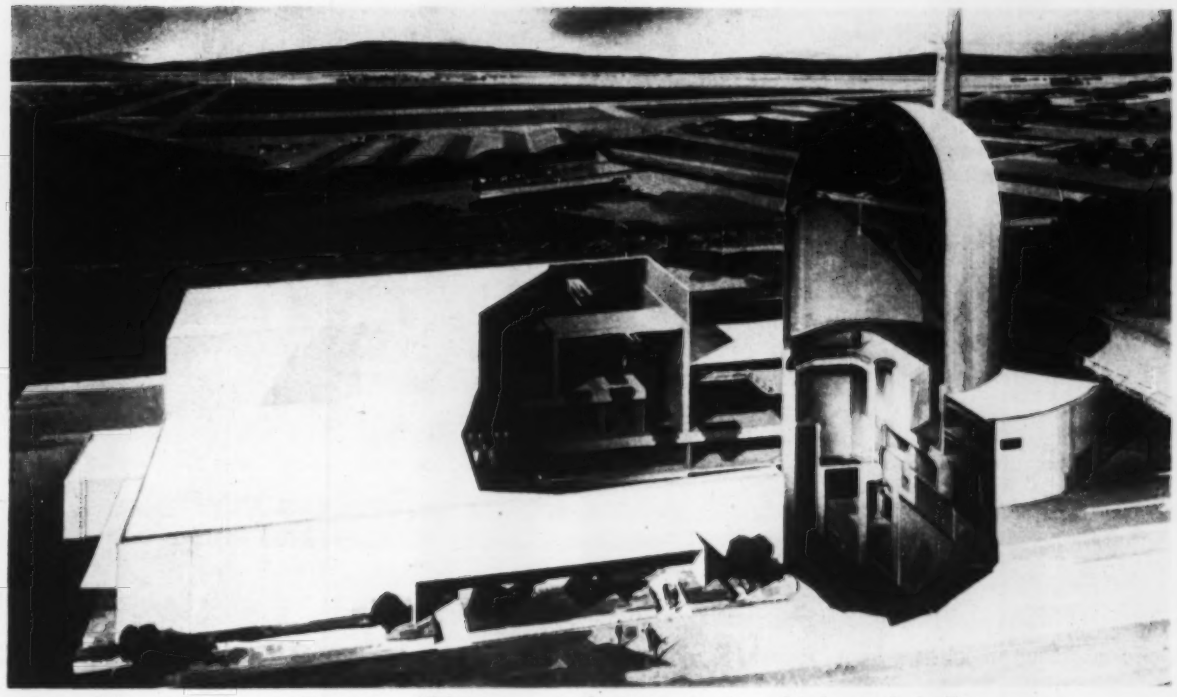
Tilt-Up Work



SNAP TIES



Ordinary Foundations



Air Force's test facility at Dayton will house a nuclear reactor in a high steel shell.

Concreting a Nuclear-Reactor Base

Placing concrete for a nuclear-reactor containment shell at Wright-Patterson Air Force Base, Dayton, Ohio, presented some new and interesting challenges.

The steel shell was to be encased in concrete for leak tightness and structural purposes. When finished, it would be 159 ft high and 83 ft in diameter, with about 50 ft of the shell below grade.

But the excavation plan left relatively little working space around and under the shell bottom (9 ft and 2.5 ft, respectively). The containment shell is a cylinder about twice as high as its diameter. It has a hemispherical top and ellipsoidal bottom.

Concrete work would appear to be a simple matter: Erect a steel cylinder in a vertical position inside a deep bowl, then place concrete around it. But specification requirements made necessary careful organization of the movement of men, material and equipment.

To determine exact location of equipment and step-by-step operations of concrete placement, the contractor developed a complete set of plans and outline of procedures.

Two openings were available for concrete placement inside the shell—a permanent truck entrance (14x14 ft) on one side and a tunnel air-lock entrance (7x7 ft) on the opposite side.

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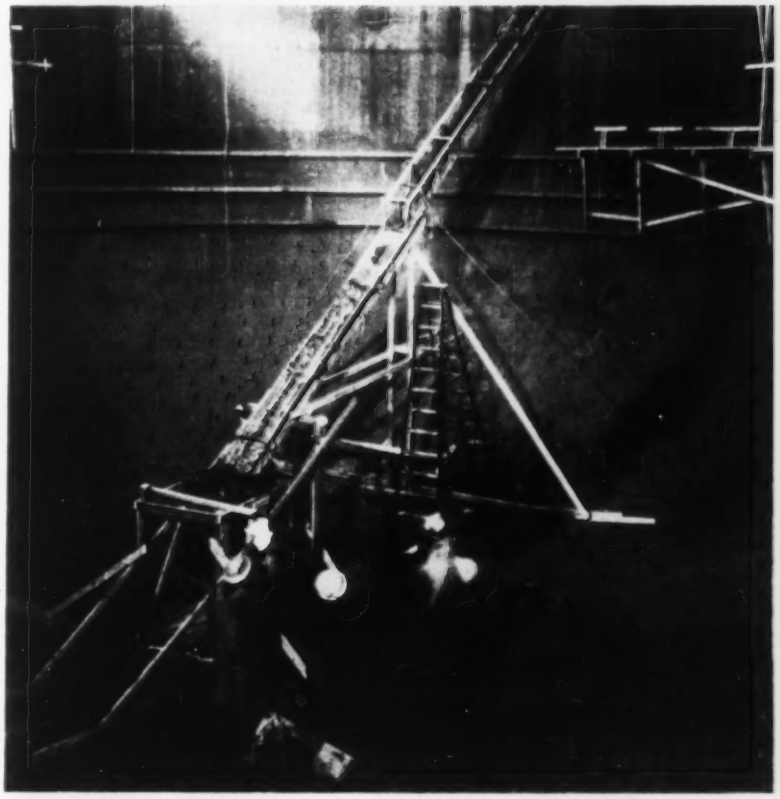


Foundation concrete was injected after erection of the shell.

The contractor selected three pieces of equipment for concreting: A guy derrick (capacity 10 tons at 50-ft radius and 5 tons at 88-ft radius) located inside the shell to handle the concrete at the truck entrance; a 30-ft conveyor, located inside the tunnel air-lock, to handle the concrete from the entrance of the lock into the shell and then into chutes and hoppers; and a 35-ton crane with a 1-cu-yd bucket feeding concrete to chutes and hoppers. Concrete also was fed directly from truck mixers into chutes and hoppers.

A sizable excavation was necessary to erect the part of the shell below grade. After studying soil conditions, the contractor decided to excavate on a ½ to 1 slope for the first 30 ft. At that elevation, blue shale was found. This material retains its position when cut vertically; so the last 20 ft was made a vertical cut. This was cheaper and faster than excavating back on a slope, which would interfere with underground service installations, roads and existing buildings. Also, additional excavation would have been expensive because backfill inside the building area was required to be a 1,500-psi concrete.

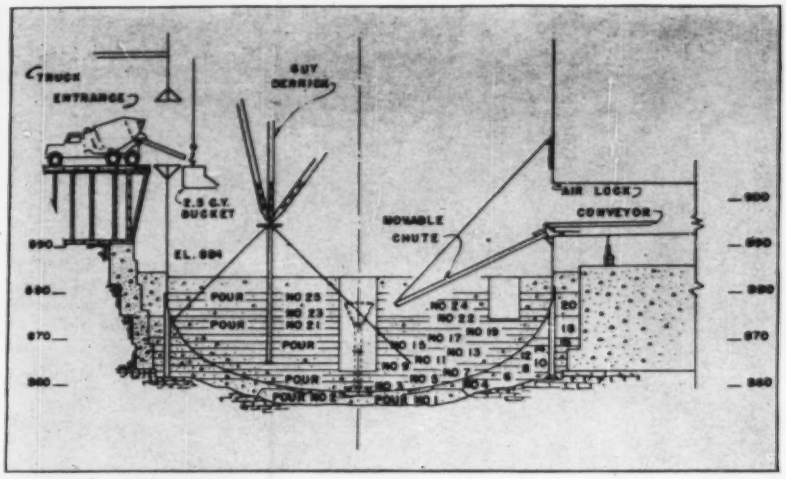
On one side of the shell, where the administration building adjoins it, the contractor protected the banks of the excavation against erosion and sloughing by constructing an "amphitheater" of lean concrete. This concrete would have had to be placed there eventually.

Two other sides of the excavation were protected from sloughing by laying old burlap on the banks, driving ¾-in. rods to hold them in place, laying chicken wire over the burlap and applying a "raincoat" of cement mortar over-all. The side under the tunnel air lock was filled with lean concrete to an elevation 6 ft below the bottom of the lock.

The steel shell was supported temporarily by 12 equally spaced steel columns, which were welded to it. The tunnel air lock was supported temporarily by four steel columns. The falsework was required until sufficient concrete had been placed to support the shell and tunnel permanently. Then part of these columns had to be cut out, but in such a way that differential settlement of the shell would not exceed ⅛ in.

There could be no quilting of the steel plate of the shell or distortion of the shell plate due to hydrostatic pressure during concrete placement—and extreme caution had to be exerted to prevent hydrostatic uplift.

To prevent hydrostatic pressure on the shell, which could either buckle the plate or throw the shell off balance, it was necessary to maintain a maximum pressure-head differential between outside and inside of 9 in. This limited the height of any one concrete lift to 18 in.



SCHEME FOR CONCRETING the containment-shell foundation called for many low lifts, so that pressure of the concrete before it set would not distort the shell.

It was necessary to hold to this limitation until about 20 ft of concrete encased the shell. Then, the shell would have full bearing on the concrete and the temporary columns supporting the shell could be cut.

To protect against cold weather, the contractor placed a double row of tarpaulins around the shell and stationed two large oil heaters with blowers in the tarpaulin enclosure.

The approximate rock-cut line, outline of the shell, concrete pours numbered in sequence, and arrangement of chutes, conveyor, and derrick are shown in sketch (above). Initial concrete was placed to within 6 in. of the bottom of the shell simultaneously from inside the shell through the bottom manhole and from outside the shell. The former was placed by means of conveyor, chute and "standpipe"; the latter from seven locations by chutes and elephant trucks suspended from the sides and bottom of the shell. Distribution of the concrete within a 36-ft diameter was accomplished by hand shoveling and mechanical vibration.

The most important placement was Pour No. 2, which made contact with the bottom of the shell, where complete adherence was required. To minimize, if not eliminate, the shrinkage problem, the contractor decided to use an expanding grout rather than ordinary concrete.

The grout was placed with the conveyor, chute and standpipe shown in the sketch. The grout flowed radially under the shell from the center to the outside perimeter of the pour. After its level rose to the low point of the shell, a sufficient head was maintained in the standpipe to force the grout under the shell in an outward and upward direction until the pour was completed.

Adherence of grout to the bottom of the shell was assumed when the grout overflowed the top of the form around the perimeter of Pour No. 2.

The bottom section of the standpipe was removed immediately after initial set of the grout by shearing off the column of grout remaining there, and the grout surface was troweled to a smooth finish at the bottom of the manhole cover. The cover then was bolted down and welded leak-tight.

Placement of the remaining concrete followed, alternately outside and inside, with the limited head differential maintained throughout. This took several days. Maximum placement in one day was 378 cu yd, while the average was 124 cu yd. The total placed around the exterior of the shell to El. 880 was 2,102 cu yd. The columns were cut out when El. 875 was reached, with no settlement occurring.

The derrick inside the shell was ultimately used for all construction purposes—handling equipment, removing trash, setting forms and placing concrete in walls within the shell. When the permanent, circular, overhead crane inside the shell was available for use, the derrick was removed.

The reactor will be operated by Wright Air Development Center of the Air Research and Development Command.

Supervising the project for Maxon Construction Co., Dayton, the general contractor, were J. E. Kuster, home office construction engineer; O. M. Hockensmith and T. M. Perala, field construction engineers; and C. C. Moeller, project superintendent. Ralph M. Parsons Co., Los Angeles, was the architect-engineer.

For 99 out of 100. . .

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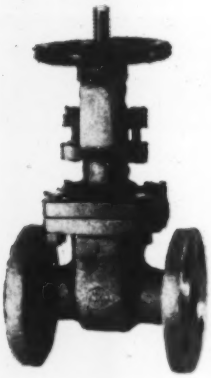

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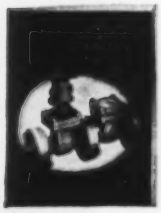

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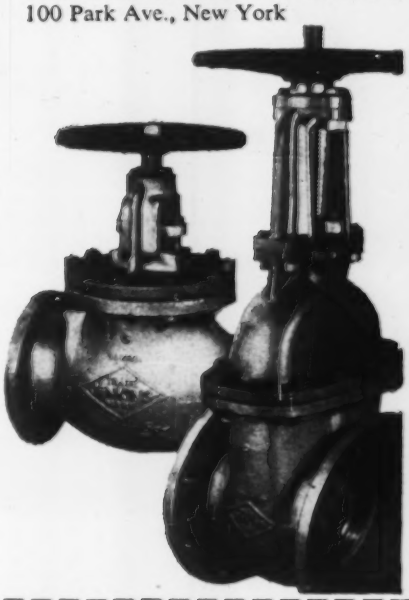

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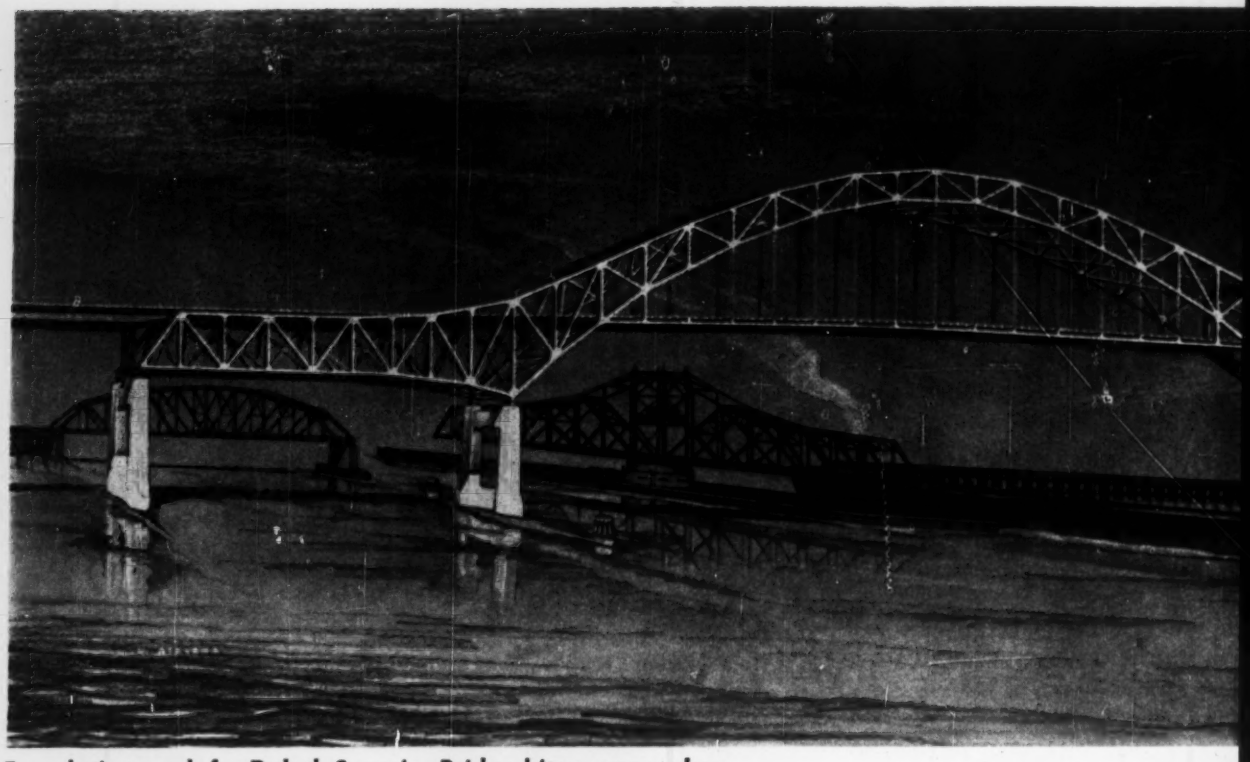


Foundation work for Duluth-Superior Bridge hits a snag when . . .

Tough Clay Challenges Pile-Driving

Most pile-driving jobs look easy. Hit 'em hard enough and long enough and they'll go down. But once in a while along comes a job that taxes the ingenuity and resourcefulness of both contractor and engineer.

This happened at the $20-million Duluth-Superior bridge. Both substructure contractors had their troubles—one with H-beam bearing piles, the other with steel tube piles filled with concrete.

The pile driving was difficult because of an underlying stratum of compressible clay, 10 to 50 ft thick. It was unsuitable as a permanent foundation for the piling because of almost certain consolidation and settlement. The piling had to be driven through the clay into good bearing sand.

The 1.5-mile long bridge will be supported on 2,880 piles totaling 36 miles in length. Of this number 2,120 are 14-in., 73-lb steel piles. The other 760 are 14-in.-dia concrete-filled cylindrical tube piles.

The first substructure contract for the eight main piers for two high-level crossings over navigable water was awarded to a joint venture of the Kansas City Bridge Co. and Johnson, Drake and Piper, Inc. It included 70,000 lin ft of the 14BP73 steel piles.

The longest of these piles are 105 ft. Of this length, 90 ft was driven through the clay and into the sand to a 65-ton resistance. The top 15 ft of pile extends up through a 10-ft concrete seal and 5 ft into the pier footings.

In their first attempt to drive the 14-in. bearing piles, the contractors used a steam-driven, differential acting, submarine-type hammer. But it didn't produce the desired results, although it had 24,450 ft-lb of striking energy and delivered 111 blows per minute.

It "rolled" the tops of the piles under the terrific pounding they took in penetrating the clay. The rolled tops of the piles stuck in the anvil block and were difficult to remove. The contractors concluded that the hammer was either too heavy, hitting too fast or both.

Then they switched to another submarine-type single-acting hammer that developed 26,000 ft-lb of energy, struck 55 blows per min, and is successfully driving the piling for the remaining main piers.

The second substructure contract was awarded to Massman Construction Co. It concluded 35,500 lin ft of the 14-in. bearing piles to support 10 piers between the two water crossings. Massman's contract also included 29,840 lin ft of the 14-in.-dia concrete-filled piles.

Massman didn't have much trouble driving the 14-in. bearing piles, using a diesel-driven hammer with a rated energy of 30,000 ft-lb.

Real trouble developed in trying to drive the 14-in.-dia tube piles through the clay stratum into good bearing sand. The lower 25 ft of these fluted piles taper to 8 in. dia. They are made of No. 3 gage (¼ in.) metal and capped with a steel plate. A diesel-powered hammer with an 18,000-ft-lb capacity was used.

With this rig, the first few tubes were driven to apparent refusal in the clay stratum.

A larger diesel hammer was then tried. Although it has a striking force of 30,000 ft-lb, only 1 ft more penetration was secured.

In desperation, the contractor switched to a big single-acting steam hammer that delivered 24,350 ft-lb of energy. But the tubes wouldn't budge any appreciable amount, although, says the construction superintendent, "we whaled the daylights out of them."

At this stage the contractor was ready to give up. He contended that the clay stratum was impenetrable. But the engineers thought different. To prove their point they drove one of the 14-in. 73-lb bearing piles as a test pile. It was driven through the stratum of clay, proving it could be penetrated.

Next the contractor tried driving the

Know-How

14-in.-dia tubes using a high pressure jet along with the heavy hammer. This worked fine for those driven vertically.

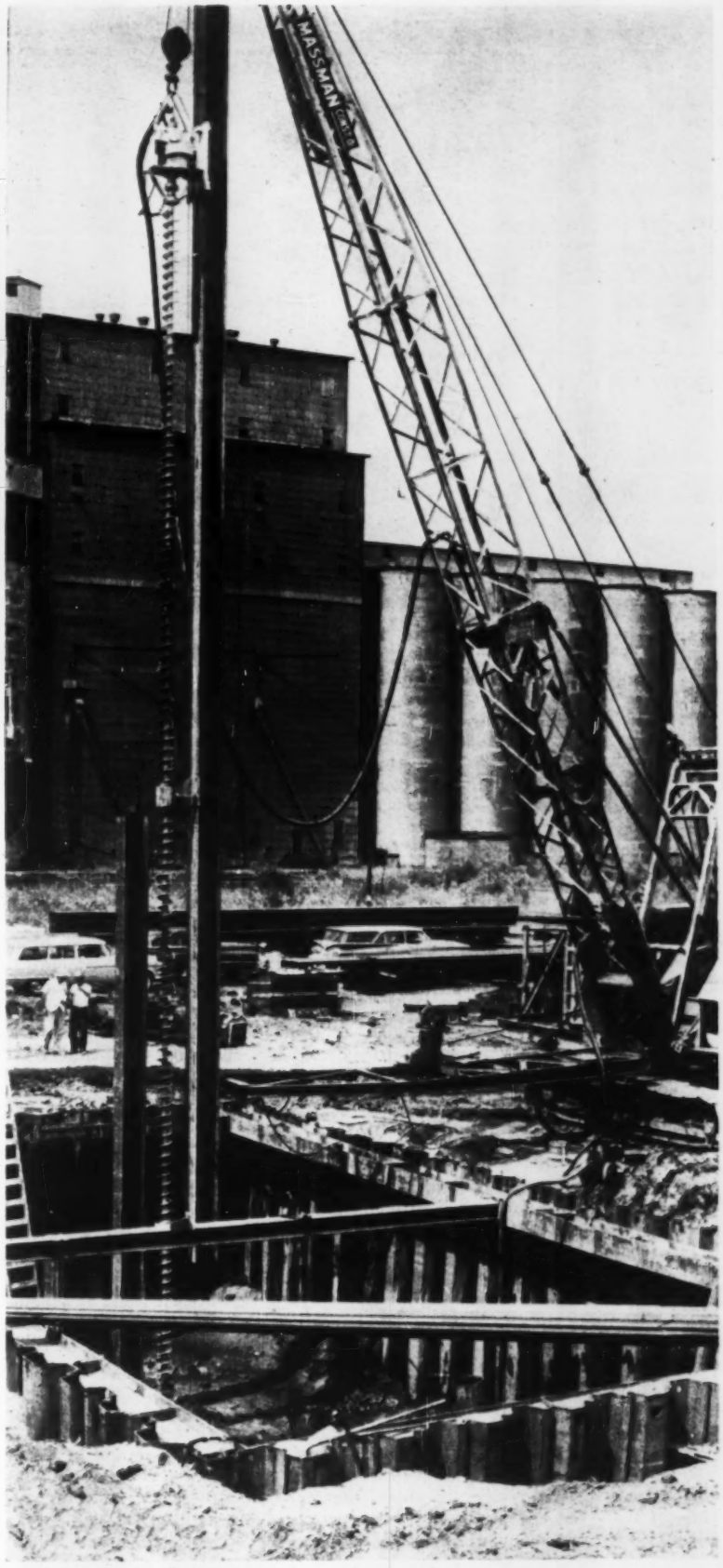
But for a row of batter piles along both sides of the footing, the jet didn't work. In fact, the results were nearly disastrous.

As the batter piles were driven and jetted their tips emerged from beneath the cofferdam enclosing the footing area. The high pressure jets stirred up the underlying material, which boiled into the bottom of the cofferdam. This caused the cofferdam to "blow" and, as a result, it was nearly lost.

The solution, which was suggested by the engineers and adopted by Massman as an alternate, was to auger a hole for each of the 760 tube piles completely through the clay stratum.

This method worked fine. A 52-ft-long, 10-in.-dia auger was put to work, driven by an 18 hp motor. It had a special head to auger through the clay. Although the auger came in 4 ft sections, it was assembled full length for drilling. The auger was so long and limber that a center guide was needed to give it sufficient rigidity. After the auger drilled a hole through the troublesome clay, it was no trick to drive the 14 in. tube to the required penetration into the underlying sand.

(Turn the page)



Auger had to drill holes through clay layer.

Wellpoints and sheeting were used to dewater foundations for land pier.

The augering went fast. A 10 in. dia hole could be drilled through 40 to 50 ft of the clay in 7 to 10 min.

After the tubes were driven to the proper penetration and bearing, they were filled with transit-mixed concrete.

The 3-in. slump, air-entrained concrete was vibrated as the fluted tubes were filled.

Constructing the big cofferdams for the four piers supporting the three-span, 1,140-ft cantilever unit over St. Louis Bay was no simple operation. Two of the cofferdams were 108x41 ft. One contained 210 bearing piles, and the other 252. The other two cofferdams measured 98x30 ft.

They were formed with 16-in. interlocking steel sheetpiling driven 40 to 50 ft below water level. Here's the sequence of cofferdam construction:

Workmen installed a driving templet and drove sheetpiling around the area. Wale frames of heavy steel beams were set and the material inside the cofferdam removed by clamshell to the required elevation.

The contractor then drove a test pile to check required penetration and bearing resistance. Then all foundation piles for the pier were driven.

Next step was to place a 10-ft seal of tremie concrete over the entire area. The area was then dewatered and the piles burned off 5 ft above the top of seal.

After the seal had been cleaned, they built the pier footing, then the base section, which extends slightly above water. Finally, the steel sheetpiling was pulled and the columns, cross-strut (where used) and pier cap were constructed.

Two types of forms were used. The combine of Kansas City Bridge Co. and Johnson, Drake and Piper, used timber forms of horizontal studs and ¾ in. plywood. They were held in place by steel strongbacks placed vertically and bolted to previously placed concrete.

Massman Construction Co., used prefabricated structural steel forms, which required no tie rods through the concrete. They were adjustable since the front and rear faces of columns are battered ¼ in. per foot. Pier caps were supported by steel girder-type forms anchored to bolts set in the columns.

Dewatering the cofferdams for the four piers of the cantilever spans was difficult. Although the interlocking sheetpiling enclosing the first 108x41 ft area had been driven as tight as possible, it took eight big pumps to "break water" and start it subsiding in the cofferdam.

The eight pumps had a total capacity of 8,000 gpm. There were five 6-in. pumps, two 4-in. pumps, and a home-made air-lift pump—called a "Jesus" pump—that had a capacity of 1,800 gpm. Even with this tremendous pumping capacity, it was a nip-and-tuck battle to dewater the cofferdam.

The contractor resorted to an old stunt practiced on other cofferdams under similar conditions. Large sheets of tarpaulin were wrapped around a heavy reinforcing bar in much the same manner as a window blind would be assembled. The tops of the tarps were fastened to the top of the sheetpiling, and permitted to unroll to the river bottom under the weight of the reinforcing bars. This created an effective seal between adjacent sheet-pile sections.

Wellpoint systems were used for lowering the water table at the land piers, where practicable. Wellpoints were 2½ in. dia at 2.5 ft c-c minimum, feeding into a 12-in. header and handled by a 6-in. pump. At some piers both a sheet-pile cofferdam and wellpoint system had to be used, due to an unusual accumulation of buried debris.

Truck mixed concrete was used. Three concrete barges also had to be used in supplying concrete for a 1,970-cu yd concrete seal at one of the main piers. The reason was simple: The pier was located on the opposite side of St. Louis Bay from the contractor's batching plant. And concrete couldn't be delivered fast enough over the existing swing bridge, which had to be opened occasionally.

Transit mix trucks delivered concrete to the barges over a temporary ramp at the edge of the water. The barges were towed across the navigation channel to the pier site and the concrete placed in the cofferdam by a crane.

Howard, Needles, Tammen and Bergendoff designed the bridge and are supervising its construction for Wisconsin and Minnesota. C. R. Swanson is resident engineer.

Harry C. Zachau is project manager for the joint venturers, Kansas City Bridge Co. and Johnson, Drake and Piper. Kenneth Sevy is general superintendent for Massman Construction Co. Stan Johnson is general superintendent for Al Johnson Construction Co., contractor for 14 piers and the abutment at the Duluth end of the bridge. E. C. Kesting is district construction engineer for the Wisconsin State Highway Commission.

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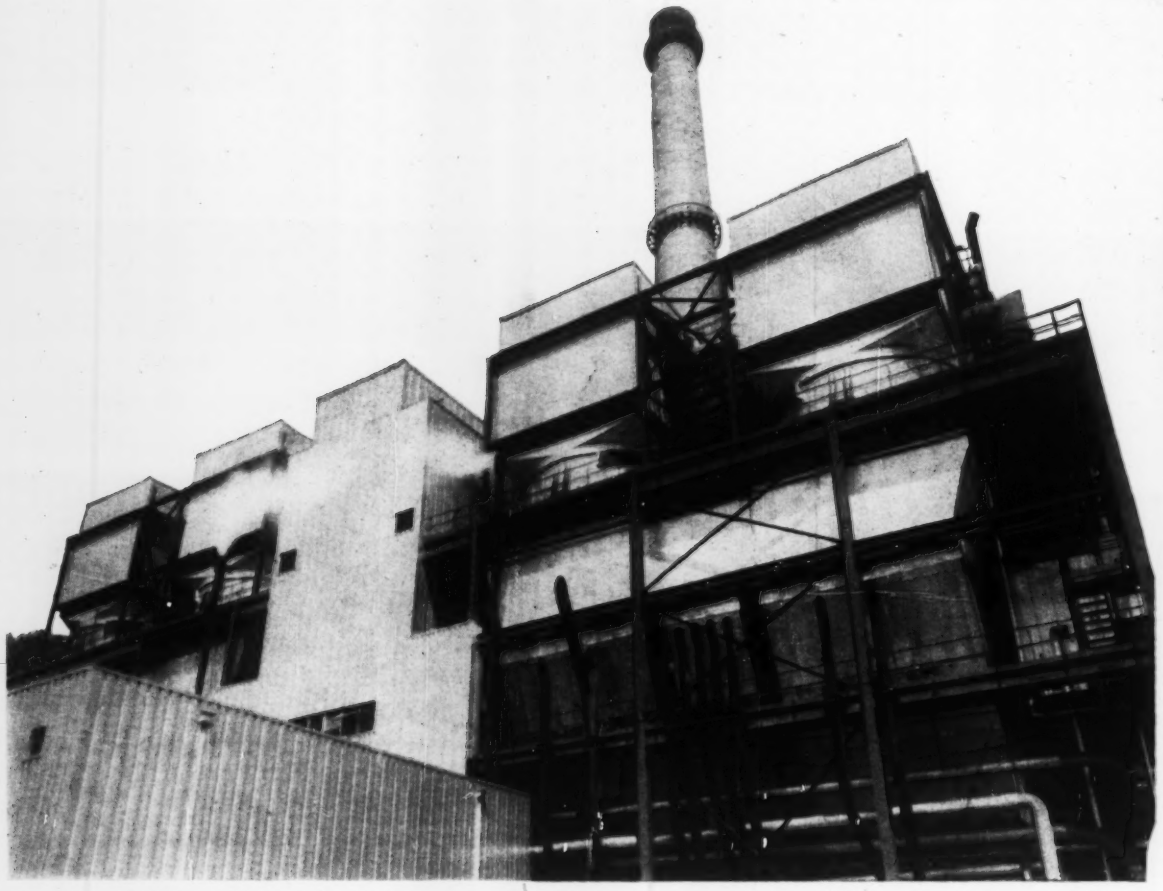

BOILER LAGGING. Use of lightweight, easily-assembled Kaiser Aluminum ribbed industrial siding for lagging of outdoor boilers reduced application time and costs over other protective materials. Because aluminum will not rust, crack or deteriorate in any climate, sizeable long-term savings in maintenance are expected at Clinch River. Aluminum's non-sparking, reflective advantages provide additional "plus."

NEW CLINCH RIVER

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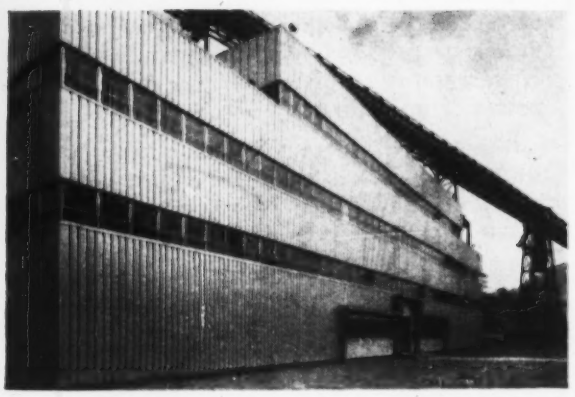
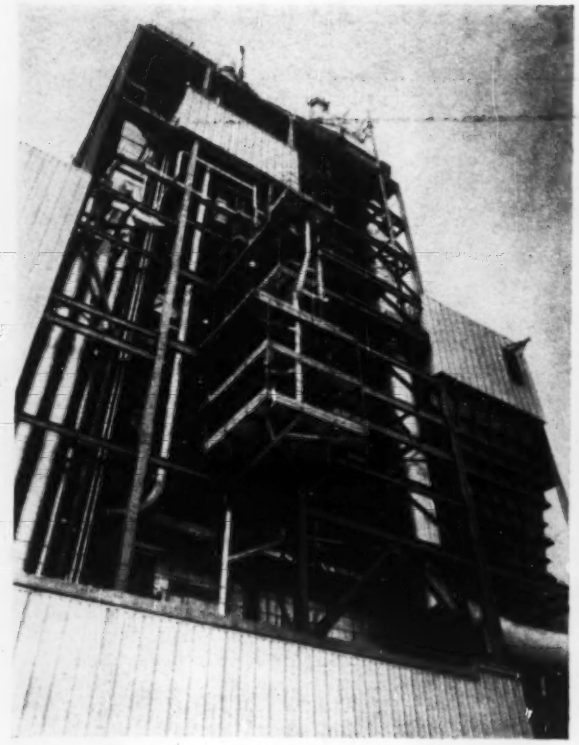
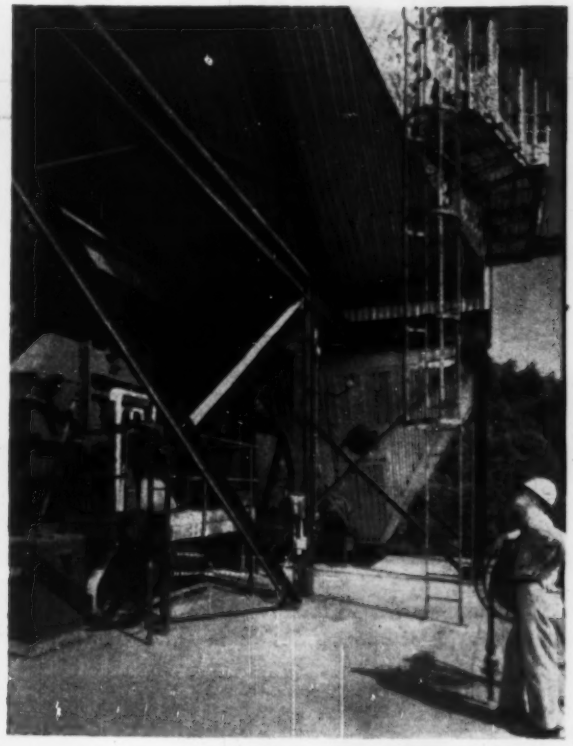


SIDING. Plant, pump building and offices are sheathed with aluminum siding backed by glass fiber insulation—will retain their distinctive good looks for years at minimum upkeep. Other cost-saving aluminum applications: wall louvers, doors, windows, trim.



PIPE JACKETING is economically fabricated of corrosion-resistant aluminum—prevents costly deterioration of insulation around pipes, where temperatures can soar as high as 1,050°F. No protective painting required. Important upkeep savings predicted.



COLLECTION HOPPERS. Another instance of insulation protected the economical way—with aluminum. Despite bad weather these aluminum lagged fly ash hoppers should serve for many decades without losing their attractive appearance.

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Old Girders for Rebuilt Bridges

Engineers used composite design to salvage original beams.

At Ely, original beams were modified and used in new overpass.

A problem for highway bridge designers across the country: How do you rebuild a bridge for a new highway alignment or to carry greater loads without completely "wasting" the old structure?

The State of Nevada found an economical solution in two recent projects, where bridges were rebuilt using the original steel girders.

One of these is the Meadow Valley Wash Bridge on Highway 93, near Caliente. The original structure was built in 1934 with a timber deck, and designed for H15 loading. In 1949 the timber deck was removed and a new concrete deck put on. In 1959, the bridge was altered to provide for H20-S16 loading and a wider roadway.

Steel beams incorporated in the original bridge were altered to make them composite with the concrete deck to increase load-carrying capacity. Designers increased the width from 26 to 32 ft by adding two beams. Spans remain unchanged—60 ft in the center, with a 19 ft 8 in. cantilever section at each end.

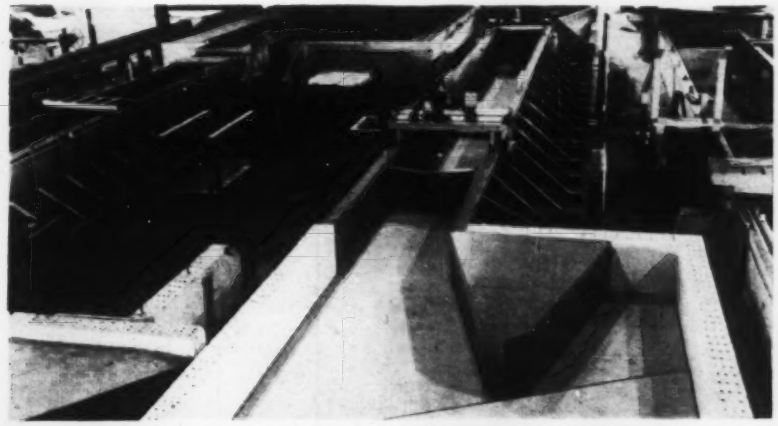
The second structure is a railroad overpass on U. S. 50 at Ely. The original overpass was built in 1938 for H15 loading. A recent change in alignment made longer spans necessary.

By changing from continuous design to a simple composite design, engineers made use of several 36-in. wide flange 230-lb beams from the old structure.

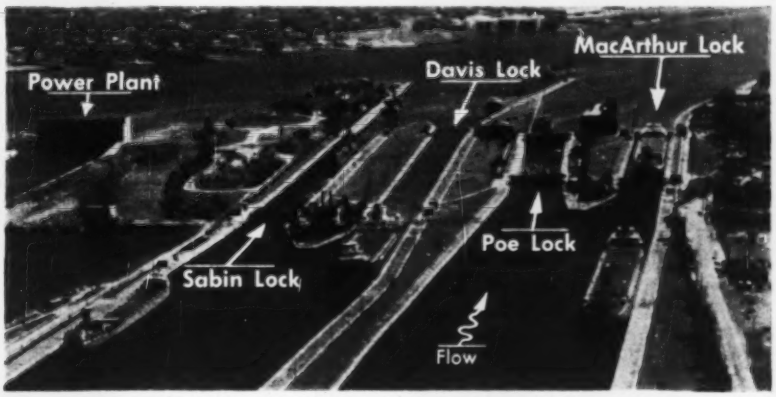
By adding cover plates on the bottom flange and shear connectors on the top flange, designers made it possible to use the salvaged beams in the end spans of the new structure.

New beams were added on the outside to provide a wider roadway; new, longer beams were used in the center spans.

The general contractor, Gibbons and Reed of Salt Lake City, handled the dismantling of the old structure as well as reconstruction of the new bridge. Total contract cost was $300,568, which includes the new construction portion of $290,255. This works out to be a superstructure cost of about $10.78 per square foot of roadway, a saving of 12% over normal cost of new construction. Based on the bid price of 20 cents per lb for new steel and 6 cents for salvaged steel, the saving was $24,064.



DESIGN and construction are facilitated by study of 1-to-25 scale model.



NEW LOCK, will be 1,000 x 100 ft, with 32 ft of water over the miter sills.

Model Study of New Soo Lock

Model studies have been completed on a new $42-million lock to replace the 63-year-old Poe Lock in the St. Marys River at Sault Ste Marie, Mich.

Construction will start early in 1961 and be completed in four years, if Congress provides the money as expected.

The new lock will be 1,000 ft long and 100 ft wide. Total depth from top of walls to floor will be 60 ft. Maximum depth of water over the miter sills will be 32 ft. Two side culverts and a split lateral system in the bottom of the lock will fill and empty it. Lock gates will be miter type.

Model studies of the new lock confirmed most of the preliminary design assumptions. Minor changes, however, were indicated in the number of intake ports and intake and discharge laterals.

The comprehensive model of the lock was constructed to a 1-to-25 scale. It included 600 ft of upstream approach, the 1,000 ft of lock chamber together with culverts and bottom laterals, and 300 ft of the downstream approach.

A replica of the hull of a 710-ft freighter was used in determining the effects of a vessel being locked through.

Although the new lock will not be the largest of the four U.S. locks at the Soo, it will be the widest and costliest. Both the Davis (1908-14) and the Sabin (1913-19) are 1,300 x 80 ft with 21 ft of water over the sills.

Fourth in size is the MacArthur Lock completed in 1943 at a cost of $14 million (ENR Nov. 18, 1943, vol. p. 738). Its dimensions are 800 x 80 ft, with 31 ft of water over the sills.

The new lock will be 296 ft longer, 5 ft wider and 15.5 ft deeper than the old Poe Lock, which has been on a standby basis.

Model studies were conducted by the Army Corps of Engineers' waterways experiment station at Vicksburg, Miss. Designs will be prepared by the Buffalo District. The Detroit District will be in charge of construction.

Researchers See 25% Gain In Power Plant Efficiency

A new experimental method of generating electricity from heat shows considerable promise as a future commercial power source, say its backers. It could top the efficiency of today's thermal power plants by 25%, they believe. Most moving parts, including the steam or gas turbines required in today's thermal plants, would be eliminated.

The new process involves a specialized field of technology with the imposing name of magnetohydrodynamics (MHD). This concerns the interactions between ionized gas and magnetic fields.

Electricity produced by the new process is generated by movement of a gas, rather than the usual metal conductors, through a magnetic field. The gas is first ionized by great heat. As the gas moves through the magnetic flux, a current is generated across the gas stream. Electrodes pick up the charge and channel it into a conventional power circuit.

A 10-kw 55-volt device embodying the MHD principle is operating at Avco Corp.'s laboratories in Everett, Mass. Ten utility companies have now joined the manufacturing firm in a further exploration of the process. American Electric Power Service Corp., parent of three of the participating power companies, represents the 10 utilities.

A year's research will indicate the expected performance and practicability of MHD power generation, Avco believes. It estimates the process will produce a kilowatt of electrical energy for each 6,200 Btu of heat energy applied. This is a thermal efficiency of 55%. Conventional thermal power plants run at a top efficiency of about 40%.

Study Shows Gypsum May Prevent Frost Heave

Research workers at Cornell University's College of Agriculture are studying a process that promises to prevent damage to streets and highways from frost heave. The method has proved effective in keeping sensitive soils from expanding under laboratory conditions more severe than those found in nature.

Under the direction of Prof. Robert Miller, Cornell scientists have found that some salts can prevent soil expansion under freezing conditions. Most effective, say the researchers, is gypsum. Soils treated with gypsum and placed in a freezer show little or no expansion, while some untreated soils under similar conditions expand to more than ten times their original size.

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White salt deposits make wasteland out of farms in Punjab.

Pakistan Moves to Desalt Land

Pakistan is going to try to reverse a natural process of soil pollution that has made large areas of the Punjab unfit for farming.

The ruinous process is the deposition of mineral salts in the topsoil by groundwater, which migrates to the surface and evaporates. The gradual buildup of salts eventually makes the soil unable to support plant life.

The biggest factor in the pollution process is lack of drainage. Much of the Punjab area of West Pakistan, where the reclamation effort is to be made, has this fault. Groundwater is less than a foot below the surface in many places. It works its way to the surface and evaporates in the intense summer heat—over 100F for lengthy periods sometimes.

The process has spoiled a sizable amount of West Pakistan's arable land and reportedly forces 100,000 more acres out of production every year.

The West Pakistan Water & Power Development Authority has embarked on a 89-million program of lowering the water table under 1.6 million acres of land in the Indus River Basin in an attempt to restore it to usefulness.

Once the upper soil is desaturated, normal drainage of seasonal rainfall is counted on to leach the salts from the topsoil.

The agency has engaged a U. S. contractor to sink 1,000 deep wells in the area. Groundwater will be pumped from the wells into canals, which will convey it to areas that need irrigation.

Salt deposition in land is of historic import. Modern agricultural experts attribute the ruin of ancient Mesopotamia's agriculture to salt buildup from irrigation without drainage (ENR Dec. 11, 1957, p. 34).

Consulting engineer for the Punjab project is Tipton & Kalmbach, Inc., Denver. Contractor is Harold T. Smith International.

Brewery Tower Doubles As Grain Silo, Restaurant

Frankfurt, Germany, will have a restaurant sitting on top of 14,000 tons of malt and barley.

Construction crews working in two shifts are slipforming a 213-ft-high reinforced concrete grain tower for the Henninger Brewery. At the top, they will build a circular restaurant for 160 persons, several smaller rooms for 40 diners each and a roof garden with a capacity of 150 persons. Two high-speed elevators will carry patrons up through a central core in the structure.

Two bucket elevators will handle the bulk material. The 14,000 tons of brewing grain will go in 31 separate air conditioned chambers in the silo portion of the tower. It will all be done automatically, both loading and discharging, controlled from a single operating room at the base of the tower.

Architect is Karl Lieser. Philip Holtzman, Frankfurt, is the builder. Completion is scheduled for spring.

And, yes, there will be a beer hall on the ground floor.

Around the World . . .

• **Uruguayan-Argentine bridge**—Creation of a joint commission to plan and supervise construction of a bridge across the Uruguay River, between that country and Argentina, has been proposed. The bridge would carry highway and rail traffic, electric power lines, and an oil pipeline.

• **Canadian pipeline**—Work will be started next spring by Peace River Oil Pipe Line, B. C., Ltd., on a $9.5-million pipeline to bring oil from Northern British Columbia to Vancouver. The proposed line will be more than 200 miles long when completed.

• **Coastal engineering meet**—The Seventh International Conference on Coastal Engineering will be held August 22-27, 1960 at the Hague, Netherlands. For information, contact Professor J. W. Johnson, University of California, Engineering Field Station, Bldg. 159, Richmond 4, Calif.

• **Northern railway**—Eighty miles of track will be in place by the end of the year on the 193-mile railway extending north from Shelter Bay, Quebec, to Quebec Cartier Mining Co.'s iron ore development at Lac Jeannine. Ore concentrated at the site will be shipped down the railway to a deep sea harbor being blasted out of solid rock west of Shelter Bay. Completion of the railway is scheduled for late 1960.

• **Reactor for Italy**—Vitro International will build a $2-million nuclear reactor for the Italian government, starting early next year. The 5,000-kw reactor will be used to train naval cadets and engineering students at the University of Pisa.

• **India gets fertilizer plant**—The Indian government has signed contracts with two German and two Italian firms to construct a $14-million fertilizer plant in southern India. It will be one of the world's largest when completed in 1963.

Australia's Narrows Bridge

One of the largest continuous prestressed concrete bridges in the world is open to traffic. Spanning the Swan River at Perth, Western Australia, across a section of the river known as the Narrows, the structure is 1,100 ft long between abutments (ENR Jan. 3, 1957, p. 50).

The bridge carries six lanes of traffic on a 70-ft-wide roadway. A 10-ft walkway is provided on each side. There are five spans, of 160, 230, 320, 230, and 160 ft. The eight lines of main girders were post-tensioned to provide full-length continuity. The deck was post tensioned transversely.

BEN H. PETTY
Renowned Educator, Engineer & Author

HOW RELIABLE ARE MAINTENANCE COSTS?

Frankly, it is our opinion that carefully selected maintenance costs can be made to prove most anything the *selector* desires, relative to comparative maintenance of concrete and Asphalt pavements. The end results depend on such widely varying factors as:

1. Ages of pavements covered.
2. Volume, weight, type, speed, etc., of traffic carried.
3. Climate, topography, geographic location, soil conditions, drainage facilities, etc., involved.
4. What is included and what is *omitted* in maintenance costs.
5. How much job patronage is involved.
6. Capability and reliability of reporting personnel from which this data originates in the field.
7. Are maintenance operations *prompt* and *proper*, or are they *long delayed* and *improperly* done?
8. How much uniformity is there in maintenance costs from the highway departments reporting.
9. Adequacy of design and construction of pavements involved.
10. And other similar variations affecting *selected* results.

Again we fall back on the 1959 comment of Mr. F. C. Turner, Deputy Commissioner and Chief Engineer, Bureau of Public Roads, Washington, D.C., as follows:

"...you are advised that the Bureau has never published and distributed any conclusions or findings of fact on the maintenance costs per mile of different road types. Numerous attempts have been made in the past to develop data on this important subject but no reliable results have so far been obtained."

Thus it is obvious that claims in Portland Cement Association advertisements that "...concrete roads save taxpayers' dollars on maintenance...which will be up to 60% less than for Asphalt" are highly questionable.

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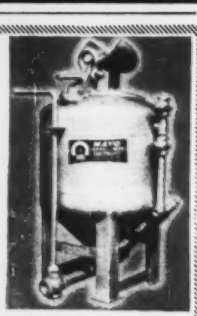

MAYO

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Men and Jobs

Iowa Names New Highway Chief

Retiring: J. G. Butter

New Chief: L. M. Clauson

New Deputy: R. M. Tutton

John G. Butter, chief engineer of the Iowa State Highway Commission since 1954, has resigned after 40 years of highway work. After graduating from the University of Nebraska, he joined the Iowa Highway Department in 1919 as instrumentman, and advanced progressively to the top post.

L. M. Clauson, deputy chief engineer since 1954, is the new chief engineer. After graduating from the Iowa State University in 1925, he joined the Iowa Highway Department as district materials engineer.

R. M. Tutton, assistant chief engineer, takes over as deputy chief engineer. He attended Tri-State College, Angola, Ind., and worked with the Florida State Road Board before joining the Iowa Highway Commission in 1928. In 1956 he was named district engineer.

Careers

Business

Andrew C. Richardson is the new merchandising manager of Sprayed "Limpet" Asbestos in the building products division of Keasbey & Mattison Co., Ambler, Pa. He has been general line salesman in the company's San Francisco district.

Warren A. Brown is the new president of the Florence Pipe Foundry and Machine Co., and its subsidiary, the R. D. Wood Co. He has been with the company for 34 years and since 1954 has been vice president of the Florence Co. He succeeds **E. Roy Russell**, who has retired.

James F. Sasser has been promoted to staff manager of the mechanical division and chief engineer of the Limback Co., Pittsburgh. **Alan Marcus** replaces him as manager of the mechanical department.

C. N. Hollingsworth Jr. has been elected president of the Dravo-Doyle Co., Pittsburgh. He started with the company in 1924 and has been executive vice president since 1958. He is also a director of the company.

Carl B. Jansen and **William E. Clark** have been elected to new positions in the Dravo Corp., Pittsburgh. Mr. Jansen, who has been president since 1946, is now chairman of the board

and chief executive officer. He succeeds **William K. Fitch,** who has retired. Mr. Clark is the new president and chief operating officer after serving as executive vice president since 1955.

Stanley R. Jacobs has opened mechanical and electrical engineering offices in Toledo. He has been project and design engineer for Lennox, Matthews, Simmons & Ford, Inc., Indianapolis.

John R. Sells has become an active member in Charles H. Sells, Inc., New York City consulting engineers and surveyors.

Public Works

Frederick F. Aldridge, chief sanitary engineer for the division of International Health, has been transferred from San Francisco to Washington, D. C. Before joining the San Francisco office he served in both Iran and India.

Frederick S. Kent is regional program director for engineering activities in the Public Health Service's San Francisco office.

Capt. R. W. Roberts takes over as commanding officer of the Public Works Center, Guam. **Capt. H. F. Thrapp,** who formerly held this position, has been assigned to the staff of the commander of naval construction forces in the Pacific, Pearl Harbor.

James F. Wright is the new deputy director in California's Department of Water Resources. He comes to his new post from the New York Department of Public Works, where he was associated with the highway division.

E. L. Miller has been appointed assistant engineer of the Marysville, Calif. district of the California highway division. He had been supervising highway engineer and an assistant maintenance engineer in the Sacramento district. Mr. Miller replaced **Perry R. Lowden, Sr.,** who retired after 34 years with the state road agency.

Maj. John F. Kimbel has been transferred to the Portland District of the Army engineers, where he is executive officer. His last assignment was London, where he was liaison officer between the Army engineers and the Royal engineers.

Cassatt D. Griffin has been named Assistant Chief Deputy Engineer for Los Angeles County. Salary: $17,496. He has served as superintendent of building for the County Engineer.

Samuel Thompson heads the newly organized Southern Water Resources Conference. He is also chairman of the Mississippi Board of Water Commissioners.

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Area_____

Name_____

Company_____

Address_____

City_____ Zone____ State____

Dodge Reports
For Timed Selling to the Construction Industry

Awards Are 14% Under Estimate

Contractors from eleven states bid for these apron operational and road relocations jobs at the Andrews Air Force Base, Maryland, for the Corps of Engineers, Washington, D. C. Of the 107 contractors from whom bids were solicited, 13 entered the fray. Whitman, Requardt & Associates, Baltimore, is the consultant.

The work was let in two contracts totaling $3,105,954, and breaks down like this:

Contract	Amount	% of Total	% under Engr. Est.
*Apron operational			
Base bid #1	$2,297,157	74.0	13.6
Additive to base bid #1	567,143	18.2	20.0
**Road relocation (base bid #2)	241,654	7.8	4.8
Total awards	$3,105,954	100%	14.2

* Lane Construction Co., Meriden, Conn.
** Williams Construction Co., Middle River, Baltimore, Md.

The concrete pavement for the apron accounts for 74% of Lane Construction Co's contract, and 68% of the total awards. Bidders were given the option of pricing 141,050 cu yd of this pavement using gravel aggregate, and 132,275 cu yd with crushed stone aggregate. Both Lane and Wright Contracting Co., second low contract bidder, priced the latter alternate, Lane at $16 a cu yd, 16 cents under Wright's bid.

Other work in this contract includes excavation, grading, subgrade preparation of fill areas, fuel piping, storm drainage, water distribution, electrical work, miscellaneous structures and appurtenances, and related work.

On the road relocation contract, Lane lost out to Williams Construction Co., Baltimore, by only $120. Work includes excavation, grading and site preparation, paving, storm drainage, electrical work, miscellaneous structures and appurtenances, and related work.

Storm drainage is the largest item in the road relocation contract, accounting for almost 43% of the total cost. An additional 26% goes into the various items for the pavement, and excavation accounts for another 14%.

Union wages on the apron operational include: tractor operator, $3.30; crane and power shovel operators, $3.80; carpenter, $3.60; common laborer (basic), $2.425.

The bidding on the two contracts went like this:

Apron Operational

1C Lane Constr. Co., Meriden, Conn.	$2,864,300
2 Wright Contrg Co., Columbus, Ga.	3,003,465
13 Winkelman Co., Inc., Syracuse, N. Y.	3,590,640
EE Corps of Engineers, Washington, D. C.	3,387,956

Bids: 11-4-59 Items	Unit	Quantity	Unit Prices 1C	2
Base Bid				
Clear & grub	ac	60	$100.00	$500.00
Excavation, uncl	cy	227,600	0.75	0.55
Pavement				
Flexible subbase course & shoulder material	cy	1,550	2.00	1.90
Select matl, base course	cy	78,361	1.38	1.90
Bituminous surface course	t	1,050	6.00	7.25
Bitumen for bit surf crse	gal	12,700	0.15	0.17
prime coat	gal	4,600	0.15	0.21
Concrete pavement, for apron (cr stn aggr)	cy	99,792	16.00	16.16
temp. hydrant blockouts	sy	600	12.00	25.00
Stabilized aggr base crse	cy	1,550	6.50	1.90
Fine grading, fertilize, seed & mulch	ac	14.2	350.00	400.00
Demol, salvage & dispose of structs, equip & utilities	ls	job	1,000	2,000
Fuel pipe, 6" dia.	lf	5,496	5.00	7.00
Elec duct, conc encase, 4"	lf	5,086	2.00	2.30
Remov & dispose exist pipe, all sizes & asso masonry structures	lf	9,775	1.00	1.50
Storm Drainage				
RCP culv, cl III, 30"	lf	123	13.00	16.00
36"	lf	76	17.00	19.25
42"	lf	405	23.00	23.50
54"	lf	436	35.00	32.00
60"	lf	460	37.00	36.75
66"	lf	517	37.00	41.25
w wtrprf jts, 30"	lf	125	16.00	18.50
36"	lf	220	20.00	22.50
42"	lf	125	25.00	25.75
54"	lf	125	37.00	35.50
60"	lf	125	41.00	41.00
66"	lf	125	41.00	46.00
Inlet, type J-1	ea	1	500.00	490.00
J-2	ea	3	800.00	725.00
J-3	ea	3	1,200	1,100
Spec struct, S-1	ea	1	500.00	nb
Conc, cl A, ditch paving, 4"	sy	100	7.00	5.75
misc struct & plug drains	cy	2	200.00	100.00
Brick to plug drains, 16" thick	sf	25	10.00	4.00
Fine grade, fert & sod	sy	20	5.00	1.00
Underdrain, 6" dia	lf	3,485	1.75	2.20
Shtg & bracing left in pl	Mbf	10	50.00	150.00
Water Distribution				
Water line, dia 1"	lf	50	1.50	3.00
6"	lf	570	3.00	3.25
8"	lf	14,030	3.65	5.75
14"	lf	7,374	8.00	10.10
Steel pipe, coated, dia 6"	lf	830	10.00	9.50
8"	lf	760	9.00	10.00
Gate vlv & box, 6"	ea	53	150.00	120.00
8"	ea	15	200.00	155.00
14"	ea	7	500.00	485.00
Corporation stop, 1"	ea	2	45.00	50.00
Service stop & box, 1"	ea	2	45.00	50.00
Fire hydrant	ea	52	200.00	300.00
Air release vlv & MH, 14"	ea	1	600.00	1,325
Blowoff & vlv vault, 6x14"	ea	2	900.00	850.00
Manhole, special water	ea	3	1,400	2,025
Cmt asb sleeve, cl 150, 10"	lf	445	8.00	7.70
12"	lf	550	9.00	8.75
Stl sleeve, 12" dia, bore & jack under exist pavement	lf	206	25.00	23.10
Electrical				
Distri & communications, aerial & underground	ls	job	15,000	31,000
Taxiway lighting	ls	job	5,000	4,750
Additives to Base Bid 1				
Select matl base course	cy	27,389	$1.38	$1.90
Concrete pavement for apron crushed stone aggregate	cy	32,483	16.00	16.16
Fuel pipe, 6" dia	lf	1,374	5.00	7.00
Elec duct, conc encase, 4" dia	lf	1,374	2.00	2.30

Road Relocation

1C Williams Constr. Co., Middle River, Md.	$241,654
2 Lane Constr. Co., Meriden, Conn.	241,774
13 Nello L. Teer, Durham, N. C.	331,586
EE Corps of Engineers, Washington, D. C.	253,342

Bids: 11-4-59 Items	Unit	Quantity	Unit Prices 1C	2
Grade & site preparation	ac	14	550.00	200.00
Excavation, uncl	cy	98,400	0.35	6.00
Pavement				
Flexible subbase course & shoulder material	cy	7,400	1.90	2.00
Flexible base course, roads	cy	4,150	1.90	2.20
Bituminous base course	t	2,750	6.00	6.00
Bitumen for surface course	gal	34,500	0.14	0.15
prime coat	gal	12,350	0.14	0.15
Conc comb curb & gutter	lf	5,930	3.00	2.00
Fine grade, fert, seed & mulch	ac	14	350.00	350.00
Grd rail, 2 cable, compl with posts, cables, creos, paint, anchor posts & accessories	lf	2,400	3.00	2.80
Storm Drainage				
RCP culv, cl III, dia 15"	lf	209	5.00	5.00
18"	lf	87	6.00	7.00
or CMP, bit ctd, smooth interior, 16 ga, 24"	lf	246	9.00	10.00
12 ga, 30"	lf	358	12.00	13.00
36"	lf	312	15.00	15.00
42"	lf	800	18.00	18.00
48"	lf	1,398	20.00	20.00
CMP, bit ctd smooth interior, 12 ga, 48" dia	lf	218	20.00	18.00
8 ga, 84" dia, with 5" vert elongation	lf	97	80.00	44.00
Inlets, type S	ea	18	300.00	400.00
type D	ea	1	600.00	300.00
Manhole, type C-1	ea	3	800.00	700.00
type C-2	ea	7	1,100	900.00
special (MH 4)	ea	1	450.00	400.00
Headwall, 48"	ea	5	550.00	400.00
Spec structs, S-8 & 9	ea	2	2,000	1,300
Concrete, class A, ditch paving, 4"	sy	72	5.00	7.00
misc structs & plug drains	cy	2	50.00	200.00
Brick, 16", for plugging dr	sf	25	25.00	10.00
Remov & dispose exist pipe, all sizes, with associated structures	lf	1,400	1.00	1.00
Fine grade, fert & sod	sy	680	1.00	5.00
Underdrain, 6" dia	lf	2,767	2.50	1.75
Shtg & bracing, left in pl.	Mbf	20	150.00	50.00
Electrical				
Distribution & communications, aerial & undergrnd.	ls	job	21,000	12,300

Phoenix Sewers Laid in An Alley and an Easement

Most of the 63,540 lin ft of 8 to 12 in. vitrified clay pipe for these Phoenix, Ariz., sanitary sewers, under an improvement district, will be laid in an alley and an easement. The city's Public Works Department awarded the contract at $321,390 to Thomson Plumbing & Heating Co., Phoenix. It was 3% under the estimate, 2% under the second bid, and less than 10% under the high of five bids. R. G. Baker, Phoenix, is the engineer.

Minimum wages range from a high of $2.95 for skilled, through $2.69 for semi-skilled, to $2.61 for common laborers.

1C Thomson Plumbing & Heating Co., Phoenix	$321,390
2 Vinson Constr. Co., Phoenix	328,631
5 N. P. Van Valkenburgh, Phoenix	355,978
EE R. G. Baker, Phoenix	332,437

Bids: 10-20-59 Items	Unit	Quantity	Unit Prices 1C	2
Vit clay pipe sewers, 8"	lf	55,847	$3.45	$3.75
10"	lf	1,840	4.50	4.25
12"	lf	5,853	4.50	5.00
Manhole, 4' brick	ea	188	220.00	220.00
Drop conn into exist or new manholes	ea	17	100.00	95.00
Cleanout, san sewer	ea	38	90.00	106.00
Tap, 6", alley or easement type	ea	920	30.00	40.00
street	ea	32	50.00	150.00
Paving patch, type A	lf	754	4.00	4.50
type B	lf	3,651	2.00	1.50
type D	lf	461	0.55	0.70

Commence: 11-30-59. Completion schedule: 365 cal days.

Materials Prices

Monthly Market Quotations by ENR Field Reporters

LUMBER, TIMBER, PLYWOOD PER M FT.B.M., CARLOAD LOTS F.O.B.

SOUTHERN PINE AND DOUGLAS FIR

All Southern Pine is No. 2 common or better and for No. 1 N. C. Box. (Prices in Bold Face)
All Fir boards, dimensions, planks No. 2. Fir small timbers and timbers are No. 1. Lengths up to 20 ft. (Prices in italics)

		1x6 s4s	1x8 s4s	2x4 s4s	2x6 s4s	2x8 s4s	2x10 s4s	3x12 Rough	6x12 Rough	12x12 Rough
Atlanta	n†R	**$97.00**	**$102.00**R	**$90.00**	**$90.00**	**$100.00**	**$100.00**	**$137.00**		
Baltimore	o	**100.00**	**100.00**	**105.00**	**105.00**	**110.00**	**110.00**	**125.00**		
		124.00g	*130.00g*	*132.50g*	*135.00g*	*135.00g*	*135.00g*	*158.00g*	*$180.00*	*$170.00*
Birmingham	n†r	**83.00**	**85.00**	**82.00**	**84.00**	**89.00**	**95.00**	**111.00**		
		80.00	*80.00*	*83.00*	*81.00*	*81.00*	*98.00*	*88.00*	*85.00*	*88.00*
Boston	na	**100.00**f	**100.00**f	**104.00**f	**104.00**f	**104.00**f	**119.00**a			
		106.00	*104.00*	*118.00*	*118.00*	*118.00*	*121.00*	*145.00*	*145.00*	*167.00*
Chicago	**	**117.00**	**120.00**	**114.00**	**129.00**	**136.00**	**137.00**	**132.00**		
		125.00	*125.00*	*136.00*	*154.00*	*155.00*	*155.00*	*145.00*	*145.00*	*145.00*
Cincinnati	n*	**102.50**	**103.75**	**96.50**	**98.00**	**104.75**	**112.75**	**121.00**		
		108.00	*111.00*	*108.00*	*110.60*	*111.75*	*127.50*	*145.25*	*145.25*	*145.25*
Cleveland	o**	**102.00**	**105.00**	**102.00**	**102.00**	**104.00**	**108.00**			
				117.00	*118.00*	*120.00*	*125.00*	*150.00*	*150.00*	*150.00*
Dallas	‡R	**76.00**k	**85.00**k	**80.00**k	**80.00**k	**78.00**k	**125.00**			
Denver	n*	*Not in stock*		*125.50*	*125.50*	*125.50*	*121.50*	*140.00*	*156.00*	*170.00*
Detroit	‡	**138.00**	**140.50**	**138.00**	**136.00**	**143.50**	**143.50**			
		136.25	*136.25*	*147.25*	*145.50*	*151.00*	*159.50*	*198.00*	*215.00*	*215.00*
Kansas City	tn	**120.00**	**120.00**	**130.00**	**132.50**	**135.00**	**150.00**			
		120.00	*120.00*	*130.00*	*132.50*	*135.00*	*140.00*	*165.00*	*225.00*	*225.00*
Los Angeles	znu	*98.00*	*98.00*	*98.00*	*98.00*	*98.00*	*101.00*	*141.00*	*141.00*	*141.00*
Minneapolis	or	*115.00*	*115.00*	*115.00*	*115.00*	*115.00*	*115.00*	*185.00*	*185.00*	*185.00*
Montreal	*bp	**84.00**a	**90.00**a	**84.00**a	**84.00**a	**99.00**a	**125.00**a			
		160.00	*160.00*	*160.00*	*160.00*	*160.00*	*160.00*	*170.00*	*170.00*	*170.00*
New Orleans	†n	**89.00**	**89.00**	**96.00**	**95.00**	**95.00**	**98.00**	**126.00**		
		108.00	*108.00*	*109.50*	*109.50*	*110.25*	*110.25*	*188.50*	*188.50*	*188.50*
New York	t	**115.00**	**116.00**	**128.50**	**128.50**	**125.00**	**131.00**	**245.00**		
				130.00	*130.50*	*127.00*	*131.00*	*171.00*	*171.00*	*171.00*
Philadelphia	nt	**105.00**	**105.00**	**110.00**	**110.00**	**110.00**	**110.00**	**135.00**		
				128.00	*128.00*	*128.00*	*128.00*	*200.00*	*200.00*	
Pittsburgh	st	**110.00**	**115.00**	**130.00**	**120.00**	**145.00**	**145.00**	**185.00**		
		135.00	*115.00*	*140.00*m	*150.00*	*155.00*	*160.00*	*230.00*	*200.00*	*200.00*
St. Louis	lnt	**114.00**	**116.00**	**124.00**dR	**124.00**d	**124.00**e	**126.00**e			
				131.00	*131.00*e	*131.00*e	*155.00*e	*190.00*e	*190.00*e	*190.00*
San Francisco	nz	*85.00*	*85.00*	*88.00*	*88.00*	*88.00*	*88.00*	*104.00*	*125.00*	*125.00*
Seattle	n†	*65.00*	*72.00*	*75.00*	*75.00*	*75.00*	*76.00*	*90.00*	*90.00*	*95.00*
Toronto	*	**86.00**a	**88.00**a	**89.00**a	**86.00**a	**88.00**	**87.00**a	**101.00**a		
		98.00	*98.00*	*104.00*	*104.00*	*104.00*	*108.00*	*130.00*	*138.00*	*138.00*

		LONG LEAF Y. P. Merchantable grade up to 20 ft. 2x12 Rough	LONG LEAF Y. P. Merchantable grade up to 20 ft. 12x12 Rough	FIR PLYWOOD ¾" Interior plyscored, C-D gr.	FIR PLYWOOD ¾" Plyform grade*
Atlanta	n†R	**$117.00**	**$156.00**	**$154.00**	**$270.00**
Baltimore	o	**175.00**	**190.00**	**175.00**	**275.00**
Birmingham	n†r	**115.00**	**168.00**	**122.30**	**214.50**
Boston	na			**165.00**e	**285.00**e
Chicago	**	**160.00**	**160.00**	**140.00**	**233.00**
Cincinnati	n*	**138.00**	**125.00**	**94.00**f	**180.00**f
Cleveland	o**			**129.00**a	**220.00**
Dallas	‡R				
Denver	n*				
Detroit	‡	**133.00**	**180.00**	**112.50**ae	**200.00**ae
Kansas City	tn			**150.00**	**215.00**
Los Angeles	znu			**120.00**	**240.00**
Minneapolis	or			**200.00**	**320.00**
Montreal	*bp	**120.00**	**120.00**	**119.25**	**225.95**
New Orleans	†n	**160.00**	**155.00**	**111.25**	**215.00**
New York	t	**245.00**	**255.00**	**123.20**a	**207.60**a
Philadelphia	nt			**150.00**kR	**270.00**k
Pittsburgh	st	**180.00**	**185.00**	**225.00**	**295.00**
St. Louis	lnt			*174.25*ackj	*272.07*ack
San Francisco	nz			**94.00**k	**175.00**k
Seattle	n†			**110.00**aeg	**205.00**aeg
Toronto	*	**89.00**a		**250.00**	**305.50**

† F.o.b. mill. * F.o.b. city, CL, out of yard. ** F.o.b. city, CL, direct mill shipment. ‡ Deliv. to contr. CL. •R Revised

LUMBER: Bold Face Type, Southern Pine. Italics, Douglas Fir. •a Spruce. •b Federal tax exempt, add 6% mun. & prov. tax. •c 5M lots. •d 8, 10, & 12 ft. lengths. •e 8 to 16 ft. lengths. •f Hemlock •g No. 1 common. •j 8 ft. lengths. •k No. 3 common. •l Add 2% sales tax. •n Less 2% disc. 10 days. •o Less 2% disc., 10th. •p Less 1% disc. 10 days. •q fir: $80.25 in truck lots, fob job or CL, f.o.b. city. •r For f.o.b. city price add $8 for pine, $38 for fir eff. 1 1 58. •s asd trucklots. •t trucklots del. •u Retail LCL yard. •v Retail LCL, del. •w add 6% mun. & Prov. tax. •x add 4% sales tax.

* PLYWOOD (Plyform, oiled and edge sealed): Douglas fir, 4' x 8' panels, 5-ply sanded 2 sides, carload lots, delivered per 1000 sq. ft. surface. Seattle base price, Interior, moisture resistant, ¾", $151.00; ¾", $171.00 Exterior, waterproof, ¾", $155.00; ¾", $175.00. •a Delivered. •c Truck lots. •d A-C exterior. •e LCL. •f less 1%, 5 days. •g less 2% for cash. •h less 2% disc, 10 days. •j add 2% sales tax.

GLASS, EXPLOSIVES, CHEMICALS

WINDOW GLASS

Discounts from jobbers list, Feb. 1, 1950a

	Single or Double Strength A quality	Single or Double Strength B quality
Atlanta	78%j	80%a
Baltimore	74%d	74%d
Birmingham	82%e	82%e
Boston	72+10%p	72+10%p
Chicago	72%	72%
Cincinnati	74%	74%
Cleveland	74-2-10%	74-2-10%
Dallas	76%	76%
Denver	73.5%	73.5%
Detroit	74-10-10%	74-10-10%
Kansas City	76-10-10%	76-10-10%
Los Angeles	$12.88-17.32k	$10.45-14.13k
Minneapolis	71-10%	71-10%
Montreal	40-10-5%b	40-10-5%b
New Orleans	76%a	76%a
New York	79%f	79%f
Philadelphia	78%	80%
Pittsburgh	72%	72%
St. Louis	72-10-10%mo	72-10-10%mo
San Francisco	60%	73%
Seattle	$8.85-11.55hq	$6.41-8.67hjp
Toronto	$6.49-9.57k	$5.90-8.70k

EXPLOSIVES

Per lb. 40% Ammonia Gelatin in 50 lb. cases delivered in 500 lb. lots

Atlanta	$0.2195
Baltimore	.2695
Birmingham	.2195
Boston	.2695
Chicago	.2695
Cincinnati	.2195
Cleveland	.2495
Dallas	.2770
Denver	.2695
Detroit	.2695
Kansas City	.2695
Los Angeles	.2695
Minneapolis	.2695
Montreal	23.20¢
New Orleans	.2695
New York	.5030g
Philadelphia	.2695
Pittsburgh	.2195
St. Louis	.2695
San Francisco	.2695
Seattle	.2695
Toronto	.2695

Price of 60% Ammonia Gelatin is $0.15 per lb. higher than 40% in U. S., $1.75 per 100 lbs. higher in Canada.

Glass: •a Jobbers' list price per box, 14 x 20, ss. $42.75 for A quality, $37.50 for B quality; 14 x 20, ds, $60.00 for A quality, $52.75 for B quality. •b sales tax extra. •c 77% for single strength. •d From 6 15 52 list. •e 77% for double strength. •f Single strength; double strength, 83%. •g From 8 1 58 list. •h ss ds, 40-in. •i 20 boxes min. •j CL quantity. •k eff. 12 58. •l eff. 10 15 58. •m less 2% disc, 10 days. •n less 1% disc, 10 days. •o add 2% sales tax. •p less 1% for cash. •q less 2% for cash

Explosives: Cartridges of 1¼" diameter or over, in standard lengths. •g deliveries in certain areas must be by truck or by truck and boat, requiring extra charge. •h F.o.b. Beloeil (near Montreal), per 100 lb., lots under 2000#, wood cases, forcite, 40%. Forcite 60%, $23.80 In fiber cases: forcite 40%, $23.20; forcite 60%, $24.95.

40% Ammonia Gelatin price ranges in other than urban areas, per lb: (except Seismograph Grades)

	C L 300,000 lb. lots	10,000 lb. lots	2,000 lb. lots	200 lb. lots
Group 1*	$0.2095	$0.2195	$0.2545	$0.2695
Group 2†	.2170	.2270	.2620	.2770

* All areas except those in Group 2 and N.J. cities of Bayone, Hoboken, Jersey City, No. Bergen, Union City and Weehawken † Florida counties of Manatee, Hardee, Highlands, Okeechobee, St. Lucieand south thereof; Idaho; Maine; Montana; New Mexico counties of Catron, Socorro, Lincoln, De Baca, Roosevelt and south thereof; Texas counties of Bailey, Lamb, Hale, Floyd, Motley, Cottle, Hardeman, Foard, Knox, Haskell, Jones, Taylor, Coleman, McCulloch, San Saba, Burnet, Williamson, Milan, Robertson, Leon, Houston, Angelina, Nacogdoches, Shelby and south thereof.

PILES, TIES

PILES

Prices per linear foot, fir and pine, rough peeled, f.o.b. cars, New York. Fir based on Wash. and Ore. points to New York shipping area; pine under fifty feet based on freight from mid-South, over fifty feet, on freight from deep South.

Dimensions	Points	Length	By Rail Pine*§ R	By Rail Fir R
12" at butt	6-in.	30 to 39-ft.	$0.32a	
12"—2-ft. from butt	6-in.	40 to 44-ft.	69	
12"—2-ft. from butt	6-in.	45 to 49-ft.	73	
12"—2-ft. from butt	6-in.	50 to 54-ft.	77	
12"—2-ft. from butt	6-in.	55 to 59-ft.	81	
14"—2-ft. from butt	6-in.	60 to 64-ft.	87	
14"—2-ft. from butt	6-in.	65 to 69-ft.	92	
14"—2-ft. from butt	6-in.	70 to 74-ft.	1.02	1.07
14"—2-ft. from butt	6-in.	75 to 79-ft.	1.07	1.07
14"—2-ft. from butt	5-in.	80 to 84-ft.	1.17	1.10
14"—2-ft. from butt	5-in.	85 to 89-ft.	1.27	1.15 1.20

* Pine piling over 90 feet available only in limited quantities. § ASTM Class B
• a, trucked in from N. J.

RAILWAY TIES

Prices f.o.b. per tie box carload lots:

		6" x 8" x 8' Untr.	6" x 8" x 8' Tr.	7" x 8" x 8'6" Untr.	7" x 8" x 8'6" Tr.
Birmingham*	Hardwood, Grade 3	$1.70	$2.55	Gr. 5 $2.25	$3.33
	Grade 2	1.50	2.35	" 4 2.10	3.18
	Grade 1	1.15	2.00	" 3a 1.70	2.78
Chicago	Red Oak		4.00a		4.50a
New York	S. L. Sap Pine	2.50	4.00	3.00	5.00
	Mixed Oak	2.50	4.00	3.00	5.00
Philadelphia	Mixed Oak	2.38	3.97	2.78	4.57
St. Louis	Mixed Oak	2.65	3.10a	3.10k	3.75ak
San Francisco	Douglas Fir	2.66ef	3.73ef	3.52ef	4.90ea

Tr.—Treated: Untr.—Untreated. aCreosoted. e Empty cell. e Green
f.o.b. cars. g 7 x 9 x 8'6" * Add 75c tie freight charge to Birmingham. •k 7" x 9" x 9½"

CHEMICALS

Water, sewage treatment, road work, f.o.b. carlots, New York

Bleaching powder in drums f.o.b. works, per 100 lb.	$5.02
Chlorine cylinders, liquid, per lb. f.o.b. works	.11
Calcium chloride, 77-80%, flaked, 100-lb. paper bag, f.o.b. works, ton	31.00
Silicate of soda, 52 deg., in drums, f.o.b. works, per 100 lb.	2.65
Soda ash, 58%, in paper bags, per 100 lb. dense	1.90
Sulphate of aluminum, commercial, in 100-lb. bags f.o.b. works	2.05
Sulphate of copper, in bags, 99% per 100 lb. f.o.b. works	21.20

See following ENR issues for OTHER PRICES:

- Wage Rates, Building Board, Lath, Insulation: Last, Dec. 3: Next, Jan. 7.
- Cement Aggregates, Ready-mixed Concrete, Asphalt: Last, Dec. 10: Next, June. 7.
- Iron & Steel Products, Pipe: Last, Dec. 17: Next, Jan. 14.

Materials Prices

Monthly Market Quotations by ENR Field Reporters

STRUCTURAL CLAY BUILDING TILE, BRICK AND LIME—DELIVERED

	STRUCTURAL CLAY TILE PARTITION — SCORED Per M. lots of 2,000 pieces or over, 3x12x12 In.	4x12x12 In.	8x12x12 In.	STRUCTURAL CLAY TILE — LOAD BEARING — SCORED Per M. lots of 2,000 pieces or over, 8x12x12 In.	10x12x12 In.	12x12x12 In.	BRICK Per M. in quantity Common backing	Straight hard	LIME Per ton, in paper, Carload lot, Hydrated finishing	Common hydrated	Pulverized
Atlanta	$170.10*e	$153.25*kke	$306.55*e	$344.85*e	.....	.....	$31.50uu	$33.75uu	$36.50kk	$28.50kk	$28.50kk
Baltimore	217.00	231.00	434.00	491.00	602.00	690.00	36.00	41.00	35.60	23.20	.....
Birmingham	135.00*aa	152.00*aa	.....	303.00*p	376.00*p	465.00*p	27.00*ff	38.00*jj	38.25*mm	20.87*mm	26.33*mm
Boston	232.00*tmm	248.00*tmm	463.25*tmm	556.00*tmm	.....	.....	43.50*p	58.00*p	42.00§	34.00§	.....
Chicago	137.00*ll	149.00*ll	280.00*ll	.....	.....	.....	32.00	34.00	38.00*ll	35.20o*ll	.....
Cincinnati	180.00*mmrr	172.00*mmrr	327.00*ddmm	390.00*mmrr	425.00*mmrr	500.00*mmrr	48.00*jk	47.00*jk	29.10*mm	25.10*mm	29.10*mm
Cleveland	200.00*tt	213.00*tt	.....	453.00*tt	.....	693.00*tt	41.75*tt	45.75*qtt	32.75*tt	28.00*pt	.....
Dallas	155.00	155.00	306.00	370.50	452.25	560.00	27.50	49.00	41.80	24.58	28.50
Denver	170.00	185.00	310.00	310.00	390.00	442.00	30.00	54.00	48.00p	42.00p	46.00p
Detroit	242.00*mm	258.00*mm	483.00*mm	548.00*mm	723.00*mm	827.00*mm	51.50*pmm	52.00*pmm	38.00*mm	30.00*mm	40.00*mm
Kansas City	158.00	158.00	312.00	312.00	400.00	500.00	34.00	34.00	36.26	34.26	29.76
Los Angeles	r	r	r	r	r	r	38.00uu		38.00*mll	38.00*mll	39.00*mll
Minneapolis	208.00*pe	225.00*pe	452.00*pe	225.00*pee	.....	.....	45.60*rpe	54.00*ype	49.00*bbe	38.00*bbe	52.00*bbds
Montreal	168.75*auqoo	180.93*auqoo	325.00*auqoo	220.00*qoo	400.00*qoo	.....	48.25*hh	56.30*hh	39.00	22.00	13.25
New Orleans	198.00	198.00	370.00	370.00	.....	.....	42.00	55.00	44.00	32.00	33.00
New York	177.00*k	189.00*k	283.00*k	285.00*kk	.....	.....	46.00p	.....	40.00p	38.00p	.....
Philadelphia R*	202.10*as	215.60*as	323.40*as	485.10*as	.....	.....	40.00*mm	50.00*mm	39.50*zzmm	21.50	21.50
Pittsburgh pp	200.00*t	213.00*t	400.00*t	453.00*t	607.00*t	693.00*t	39.00*t	46.00*t	38.00*t	33.00*t	34.00*t
St. Louis	180.00*mmpp	190.00*pp	385.00*pp	401.00*ppp	459.00*pp	621.50*pp	44.00*mmpp	45.50*pp	1.00*aapp	.80*aapp	1.35*aapp
San Francisco	156.85*mm	177.10*mm	235.30*dd*mm	159.40*ggmm	.....	.....	43.00*mm	43.00*mm	29.24mm	29.24mm	31.74mm
Seattle	235.00*pt	270.00*pt	490.00*pt	265.00*pt	.....	.....	52.00*tt	66.00*tt	52.00*bbt	38.00*bbt	4.50*mbbt
Toronto	158.00*rr	173.00*rr	336.00*rr	263.00*rr	378.00*rr	.....	25.00*rr	63.00*rr	38.00mm	34.50mm	33.50mm

*½ F.o.b. yard. **• F.o.b. plant Stockton. *† F.o.b. yard Roxbury. *‡a Smooth. *‡b $4.50 del. *‡c 8 x 12 x 12 In.–6 cell. *‡d Pulverized hot. *‡e less 8% disc., 10th., ‡f 8 x 8 x 12. *‡g Lumps, $26.72. *‡h F.o.b. trucks, job site N.Y.C. *‡i 60 lb sacks. *‡j Truck load or over. *‡k $1.00 discount per M, 10 days. *‡l Red face. *‡m Per bb 180 lb. processed. *‡n 7⅝ x 7⅝ x 12. *‡o Mason's double hydrated pressure. *‡p Truck lots. *‡q Provincial and Municipal tax extra (6%). *‡r Not used: earthquake danger. *‡s 8 x 16 x 12. *‡t less 2% disc., cash. *‡u Incl. Federal tax. *‡v Sand lime. *‡w 5 x 8 x 12. *‡x dumped. *‡y Chi common. *‡z Pebble: 80 lb sack. *‡aa 50 lb sack. *‡bb LCL. *‡dd 6 x 12 x 12. *‡ff 80% common. *‡gg Smooth. *‡hh less 25¢ disc., cash. *‡ii F.o.b. plant. *‡jj rough: smooth: $40. *‡kk 3½ x 11½ x 11½. *‡ll less 2% disc. 10th. *‡mm less 2%, 10 days. *‡nn F.o.b., L. A. *‡oo less 2%, 30 days. *‡pp add 2% sales tax. *‡qq 8 x 5½ x 11½. *‡rr 2½% disc., 10 days. *‡ss 5% disc., 10 days. *‡tt less 2% disc., 15th. *‡uu less 50¢ M, 10 days. *‡vv 4000 pcs. and over. *‡xx revised eff Sept. 1. *‡R revised

* Philadelphia prices revised, watch for analysis.

PAINT, ROOFING—F. O. B. CARLOAD LOTS

	RED LEAD Per 100 lb. In 600 lb. (Approx.) bbl. F.O.B. Plant Dry a C	WHITE LEAD Per 100 lb. In 100 lb. cases In oil	READY-MIXED PAINT Per gal., drums Graphite b	Aluminum c	Ferric Oxide d	ROOFING SUPPLIES; Carload lots f.o.b. factory Rolls, slate surfaced, 85–90 lb. per sq.	Asphalt felt, per 100 lb.	Tar felt, per 100 lb.	Asphalt coating per gal.	Tar pitch 380 lb. bbl. per ton
Atlanta	$13.75*gg*JO	$24.00*gg*J	$3.59	$3.86	$3.31	$2.90*kk	$2.12*kk	$2.49*kk	$0.67*kk	$63.50*kk
Baltimore	17.50*pp	24.00	3.90	4.40	3.50	2.78	4.25	4.25	.48	56.75
Birmingham	26.00*f	29.00*J	3.90*J	3.40*J	.....	3.08*mm	3.28*ttmm*X	2.28*ttmm	.75¢*mm	45.00*eemm
Boston	29.95*oommm	28.90*mmm	.....	.....	.....	3.74*g	2.45*g	2.83*g	.50*g	58.00*g
Chicago	15.25*rJqqpp	24.00*J	.....	.....	.....	3.80*ukk	2.76*ukk	3.00*bbkk	48.00*bbkk	57.70*tkk
Cincinnati	15.25*JO	24.00*J	.....	.....	.....	2.87*mm	2.02*mm	2.42*mm	.428*mm	55.96*Hmm
Cleveland	25.65*t	26.90*	2.620*qq P	2.85*zzqq	3.29*qqq	2.82*q	2.05*o	2.42*o	.484*y	49.00*qq
Dallas	22.50	23.50*M	.....	3.25*R	.....	3.00*u	3.00*o	3.00*o	.470	66.00*kk
Denver	23.00*n	24.00	3.98	5.20	3.70	2.86	2.12*o	2.80*o	.50*ff	50.00
Detroit	16.25*r	24.00*rr	2.70*mm	3.95*mm	2.70*mm	2.82*mm	2.05*mm*ll	2.42*mm*ll	.56*ffmm	49.00*mm
Kansas City	26.90*ggoo	25.65	3.99	3.43	3.01	4.01*mm	2.77*mm	2.77*mm	.82*y	.....
Los Angeles	15.25*yy	22.00	3.30*n	4.50*n	4.20*n	3.40*kkk	2.40*ukkk	*l	75*npkk	*l
Minneapolis	17.83*N	21.50*kk	.....	.....	.....	2.87*kk	2.12*kkk	2.42*kkk	.438*kkk	50.00*rkk
Montreal	19.45*O	26.00*tt	5.52*Dff	6.55*zff	5.10*kff	5.40	4.65*f	4.65*f	1.60	4.40*uu
New Orleans	23.00*Jpp	24.00*J	.....	.....	.....	2.78	1.98	2.85	.680	45.50
New York	15.75*ooO	29.75	.....	.....	.....	3.06*zz	2.02*zzo	2.45*o	.438*u	49.00*
Philadelphia R*	16.25*mm	24.75mm	3.35mm	3.90mm	2.65*Rmm	4.70	3.60	2.85	.515	50.00
Pittsburgh	21.00*ggJ	24.00*J	2.20*EJ	2.25*FJ	2.25*GJ	3.57*H	2.75*H	2.95*H	.48*H	55.00*H
St. Louis K	25.65*m	26.90	.....	.....	.....	3.20*mmm	2.31*kk*K	2.86*kk*K	.428*yK	62.00*K
San Francisco	26.70mm	26.90mm	3.20mm	4.30mm	3.50mm	2.95mm	1.97*aaumm	3.10mm	.48*ff	54.00
Seattle	13.35*HO	24.00*H	.....	4.19*ceffJ	.....	3.64*ccH	3.16*ccH	.....	.55*cc	.....
Toronto	14.45	20.65	5.15*J	6.18*J	5.95*J	2.52	2.40*aae	2.40o	1.01†	50.00*A

*† Delivered. * Note: Red lead in oil 50% higher than white lead in oil. ** Aver. wt. approx. 425 to 550 lb drums. *a Red lead prices change frequently due to pig lead price changes. *b U.S. War Dept. Spec. 3-49A. *c ASTM Spec. D268-31. *d 80% minimum ferric oxide. *e Per 108 sf roll. *f Per 432 sq ft. *g F.o.b. yard Roxbury. *h Per roll, 65 lb. *i Net carload prices, Minneapolis and vicinity. *j 45 gal containers. *k Over 80% ferric oxide. *l Not used. *m 100 lb. keg. *n F.o.b. city. *o Per 60 lb roll. *p 5-drum, 50 gal each. *q Per 90-lb roll. *r F.o.b. factory, Chicago. *s Truckload. *t Incl. Federal tax. *u Per 90-lb square. *v Per ton. *c Ready-mixed. *y 55-gal container. *a Drums. *aa 15 lb. *bb Roofers coating and cement. *cc LCL, truck delivery. *ee Asphalt pitch in 100 lb package. *ff 5-ga drums. *gg F.o.b. factory. *hh Incl. freight. *ii Per 324 sf roll. *jj Asbestos roof coating. *kk less 2% disc., 10th. *mm less 2% disc., 10 days. *oo 100 lb bbls. *pp 50 or 100 lb bags. *qq 500 lbs or more. *rr F.o.b. plant, Detroit. *ss 50 lb bbls. *tt 25 lb kegs. *uu 250 lb bbls. *vv Sept.: Rolls revised to $2.75, Asph. Felt revised to 1.71. *ww Sept. revised to $12.00. *xx Sept. revised to $2.80. *A 400 lb barrels. *B ASTM Spec. D962-49. *C 95%. *D Std. black. *e Milt. spec.: E TTP27; F TTY81; G TTP31. *H less 2% disc., cash. *I Per 100 lb. *J less 1% disc., 10 days. *K add 2% sales tax. *L CL. *M 1 ton or more. *N under 500 lbs, add $1. *O 50 lb. bag. *P Sept. revised to $2.43. *Q Sept. revised to $3.23. *R revised.

PLASTER, VERMICULITE AND METAL BUILDING SHEETS & TUBING

	PLASTER‡ Neat per ton	Gauging per ton	VERMICULITE‡ Home Insulation pellets	Plaster aggregate	Concrete Aggregate Untreated	PERLITE‡ Plaster Aggregate	Concrete Aggregate Untreated	ALUMINUM SHEET† Flat .100" th 36"x108" & 48"x144" per lb/t	Corr roof .032" th 35"x12' per sht	STAINLESS STEEL† SHEET-TYPE 302g 20 ga 48"x96'–120' per cwt/sh	28 ga 36"x120' per cwt/sm	COPPER WATER* TUBING-TYPE L 2000 ft lots per ft ¾"h	½"c
			per bag of 4 cu ft										
Atlanta	$32.00aa	$42.00aa	$1.55aaa	$1.65aaa	$1.80aaa	$1.65aa	$1.65aa	$0.440noo	$8.83n	$65.68nzz	$74.43nzz	$0.1762aa	$0.2464aa
Baltimore	23.80	34.60	0.95	1.15	1.15	1.15	1.55	0.462	0.451r	63.00	71.25	0.16	0.23
Birmingham	37.00aa	43.00aa	1.55aa	1.55aa	1.60aa	1.27aa	1.27aa	0.458*M*	9.62*K*	67.34*K*	76.09*K*	0.20aa	0.27aa
Boston	24.00	30.00	1.40	1.40	1.40	1.55aa	1.50aa	0.462	29.35p	64.42dd*zz	72.67dd	0.1762aa	0.2464aa
Chicago	28.80tt	26.80tt	1.55	1.60	1.60*l	1.60	1.60	0.506z	9.30a	64.15ee	72.40ee	0.1762	0.2464
Cincinnati	23.85*aa	23.85*	1.75*aa	1.75*aa	1.75*aa	1.85aa	1.90aa	0.434	9.56	65.30zz	74.05zz	0.1992aa	0.2791aa
Cleveland	28.00*N	45.00*N	1.14aa	1.16aa*X	1.24aa*X	1.45aa	1.45aa	0.458aa	8.48	64.33oozz	72.58oozz	0.1814tt	0.2545tt
Dallas	30.65	30.65	1.05	1.21	1.37	1.21	1.32	0.452	0.451r	64.09	72.34	0.1668	0.1986
Denver	27.00	27.00	1.50	1.40	1.50	1.50aa	1.60aa	0.452	10.89	65.00qq	73.57oo	0.1772	0.2380
Detroit	28.00aa	28.00aa	1.27aa	1.31aa	1.40aa	1.45ktt	1.50ktt	0.452a	10.19a	65.15azz*	73.90azz*	0.2058	0.2887
Kansas City	30.00	35.00	1.19*E	1.21*E	1.29*E	1.21		0.444	23.20qqvv	67.50*E	76.25*E	0.1814	0.2545
Los Angeles	27.00tt	28.00tt	1.25ktt	1.20ktt	1.25tt	1.11	1.11	0.486	10.543	65.02	73.27	0.1814	0.2545
Minneapolis	35.00*F	35.00*F	1.65tt	1.80*F	1.95*F	1.40*S	1.50*S	0.468	16.23	63.61*GR	69.61ff*G	0.1446t	0.2025
Montreal	27.60*A	35.60*A	1.25*A	1.40*A	1.50*A	1.15*	1.15*	43.95*A*H	12.10*H	64.75*H		0.1840	0.2187
New Orleans	34.00	48.00	1.25*P	1.35*P	1.25*P	1.25*P	1.25*P	0.526	24.90	65.00*Y	73.75*Y	0.1853	0.2596
New York	29.00	35.00	1.40	1.35	1.40*Y	1.35	1.45	0.462a*T	0.2335a*R	64.08a*B	72.33a*B	0.1814	0.2545
Philadelphia	26.50	31.00aa	1.30aa	1.30aa	1.40aa	1.25aa	1.25qqaa	0.44	9.46	63.00	71.25	0.1814	0.2545
Pittsburgh *	30.00nn	33.00nn	1.50nn	1.50nn	1.50nn	1.50nn	1.50nn	0.452	9.46	64.00	78.25pp	0.1518	0.1807
St. Louis uu	30.00uu	41.00uu	1.50uu	1.60uu	1.65uu*Y	1.60uu	1.60uu*Y	0.452	10.28	65.39*Kmm	71.89yuu	0.1814mmaa	0.2545mmaa
San Francisco	29.50aa	30.50aa	1.38aa	1.38aa	1.50aa	1.38oaa	1.58oaa	0.502	9.76	66.50*K	74.25*K	0.1814	0.2545
Seattle	42.40nn	45.60nn	1.55nn	1.25knn	1.85nn	1.50k		0.45*D	9.90*D	64.02*D	83.27*D	0.1814	0.2545
Toronto	30.40	50.00	1.45	1.45	45.00*Q	0.3995	24.75aa*p	0.462	10.73	73.74	88.52	0.2886	0.3214

‡trucklots, delivered †fob warehouse *fob city *a delivered *b ½" O.D. *c ⅝" O.D. *d per sf. *e 34" x 60" sheet *f per 100 ft *g 5 tons & up: cold roll, anneal & pickled 2B finish *h incl. Federal tax *i add 25¢ for pint of additive *j 1100 & 3003 alloy, mill finish *k bag of 3 cu ft *l treated with air entraining agent *m 2-10M ft *n fob mill fr equalized with nearest stocking competitor *o 250 sacks or more *p 100 sq ft *r per lb *s 30 lb bag *t 36" x 108"; 10.81 lb sh; 48" x 144"; 21.7 lb sh *u 19.31 lb/sh *v fob plant *w 48" x 144" *x 0.11"th *y 27 gauge *aa 16M lb & up *dd add $1.00 cwt boxing *ee 4 tons & up *gg add $2 cwt boxing; $0.75 cwt on skids *hh Theoretical wt for 48" x 96": 60.4-lb. per sh *ii 300-bag lots *jj 100-lb bag *mm Theoretical wt: 19.7-lb per sh *nn 2% cash *oo skid packed *pp type 304 *qq Philadelphia and suburbs. *rr less 2% disc. 15 days. *ss less 2% disc. 10 days. *tt less 2% disc. 10th. *uu add 2% sales tax. *vv Type N. *ww Per 100 sf. *xx less ½% disc. 10 days. *yy .021 ga. *zz .061" th. *A Per 100 lb. *B crated. *C 15M lb. *D less ½% for cash. *E Quantity differential. *F less 5% disc. 10th. *G less ½% disc. 10th. *H Fed. tax exempt. *K less ½%, 10 days. *L 5% disc. 30 days. *M 3003: .452 for 1100. *N less 2%, 15th mo. *O less $2, cash & carry. *P less 2%, 15 days. *Q per ton. *S add .10 bag under 200 bags. *T 5000# quantity on 4000# skids. *U 30 Msf quantity; $0.245 in 10 Msf quantity

* Philadelphia prices revised, watch for analysis. *R per sq ft. *X eff. Nov. 1 *Y eff. July 1

Bids Asked—Low Bidders—Contracts Awarded—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager J. A. MAHONEY, M. WETZEL, M. E. SCIORRA, MARIE MORAVSIK, ELAINE CHOMYAK, ELIZABETH WERRA, ELEANOR QUERET, Reports; J. H. WEBBER, E. R. HUBER, Statistics.

NEW ENGLAND

HEAVY CONSTRUCTION—BA

▲† **Mass., Westfield**—AIR NATIONAL GUARD FACILITIES—BA 12/30—U.S. Eng., 424 Trapelo Rd., Waltham, Air National Guard Facilities, Barnes Airport, ENG-19-016-60-20. $1,500,000-$1,600,000. Plans deposit $25. Brask Engineering Co., 177 State St., Boston, engr. CD 11/2, under LB.

BUILDINGS—BA

Conn., Branford—SCHOOLS—BA 1/13—Town, Bd. Educ., Laurel St., brick block Damascus Road and Bushy Plains Elementary Schools. $530,000. Lyons & Mather, 211 State St., Bridgeport, archts. Hill & Harrigan, 909 Whalley Ave., New Haven, engrs. CD 7/9.

Mass., Chelsea — LABORATORY — BA 1/15 — Commonwealth of Mass., Trustees Chelsea Soldiers' Home, c/o Div. Bldg. Constr., 38 Chauncy St., Boston, V-58-2 Contr. 1, laboratory, Soldiers' Home. Approx. $425,000. Plans deposit $30. Perry, Shaw, Hepburn & Dean, 31 St. James Ave., Boston, archts. CD 7/24.

BUILDINGS—SLC

Mass., Framingham—PLANT—International Paper Co., 80 Federal St., Boston, soon lets contract superstructure for manufacturing plant, Industrial Park. Total est. $500,000. Jackson & Moreland, Inc., Park Square Bldg., Boston, engr. CD 11/30.

BUILDINGS—LB & CA

Foley Abrams Corp., 45 Bartlett Crescent, Brookline, Mass., CA $672,700, M-58-15. Contr. 1 NURSERY BLDG., State School, BELCHERTOWN, MASS. Commonwealth of Mass., Dpt. Mental Health, c/o Div. Bldg. Constr., 38 Chauncy St., Boston, Mass. Bids Dec. 4. CD 12/8, under LB.

D. Guschov Co., Pemberton Square, Boston, Mass., LB $527,300, SAH Proj. 667-3, HOUSING FOR THE ELDERLY, 221 Essex St., BEVERLY, MASS. City Housing Auth., 49 Story Ave., Beverly, Mass. Bids Dec. 7. CD 11/18.

Owner, c/o Middlesex Homes, Inc., 1 Russell St., Woburn, Mass., Separate Contracts, Approx. $418,000 (2nd section), 25 HOUSES, "Glenview", Wyman St., BILLERICA, MASS.

M. J. Maguire & Co., Inc., 856 North Main St., Randolph, Mass., Separate Contracts, Approx. $415,000, 20 HOUSES off Westdale Rd., CANTON, MASS.

Indian Head Realty Trust, Hanover, Mass., Separate Contracts, Approx. $408,000 (2nd section), 24 HOUSES "Indian Head Village", HANOVER, MASS.

▲ **Bacon & McLeish**, 225 E. Main Rd., Middletown, R. I., Ld $1,684,834, JUNIOR-SENIOR HIGH SCHOOL, off Valley Rd., MIDDLETOWN, R. I. Town, School Comm., Middletown, R. I. Bids Dec. 8. CD 11/13.

A. Prete, 16 Olive St., New Haven, Conn., CA $765,340, 5 story, Salmon brick ACADEMIC BLDG., NEW HAVEN, CONN. Albertus Magnus College, 700 Prospect St., New Haven, Conn. Bids Nov. 10, awarded Dec. 11. CD 11/24, under LB.

Cocco & Cocco, Stonybrook Circle, Trumbull, Conn., CA $800,000, 2 story, 176 x 248 ft., masonry; steel BOWLING ALLEY, SPORTS CENTER and RESTAURANT, Stratford Ave., STRATFORD, CONN. Stratford Town Fair, Inc., 1785 Stratford Ave., Stratford, Conn., Awarded Dec. 11. CD 7/24.

MIDDLE ATLANTIC

BUILDINGS—BA

▲† **N. Y., Brookhaven**—PHYSICS BLDG.—BA On Or About 1/26—U. S. Atomic Energy Comn., Brookhaven Area, Engineering & Constr. Branch, Bldg. 464, 53 Bell Ave., Brookhaven National Laboratory, Upton, 1 and 2 story physics bldg. at Brookhaven National Laboratory, Brookhaven. Plans deposit $35. Seelye, Stevenson, Value & Knecht, 101 Park Ave., New York, N. Y., archts. CD 10/26/55.

N. Y., Buffalo—SCHOOL—BA 2/9—Bd. Educ., City Hall, Zone 2, Public School No. 6 addn., Hickory and S. Division. $750,000. CD 7/11/58.

BUILDINGS—SLC

Pa., Fairless Hills—HEADQUARTERS—Cauffman, Wilkinson & Pepper, archts., 204 Rittenhouse Square, Phila., soon lets contract central headquarters, gymnasium for Lower Bucks County Young Men's Christian Assn., 241 Oxford Valley Rd. $500,000. CD 1/26.

HEAVY CONSTRUCTION—LB & CA

▲ **Allis-Chalmers Mfg. Co.**, 100 Church St., New York 7, N. Y., CA $1,303,040, two 400 M.V.A. autotransformers, Niagara Co. Contr. NP 33, NEW YORK, Power Authority of State of New York, The Coliseum Tower, 10 Columbus Circle, New York 19, N. Y. Bids Nov. 24. CD 11/29, under LB.

NEW YORK—State Dpt. P. Wks., State Office Bldg., Albany.

Peckham Road Corp., 50 Haarlem Ave., White Plains, N. Y., CA $977,873, b. c. conc. pavement, Type 1A, 8.8 mi., misc. work 0.02 mi. Meir-Bombay SH 885, Hogansburg-Bombay SH 820, Rte. 95, FARC 59-126 Proj. S-499 (2), Franklin Co. Bids Oct. 15. CD 10/16, under LB.

Pittsburgh-Des Moines Steel Co., 200 E. 42 St., New York, N. Y., CA $311,420, Contract 1, tank construction, sewage treatment plant, ITHACA, N. Y. City Council Chambers, City Hall, Ithaca, N. Y. Bids Oct. 14. CD 9/28.

M. A. Bongiovanni, 1400 Jamesville Ave., P.O. Box 147, Colvin Station, Syracuse, N. Y., CA $526,158, Contract 2, Alternate 1, general construction (Ithaca, N. Y.).

▲ **Horn Constr. Co.**, 2174 Hewlett Ave., Merrick, N. Y., LB $2,147,538, (5 bidders), replacement of contact rails, Jerome Avenue Line, south of 167th Street Station to Woodlawn Station, IRT Division, Contr. T-136, Bronx Boro, NEW YORK, N. Y. New York City Transit Auth., 370 Jay St., Brooklyn 1, N. Y. Bids Dec. 11. CD 11/23.

† **Grunley & Walsh**, 327 Carroll St. N. W., Wash., D. C., LB $532,700, (13 bidders), operational mission training bldg., John H. Towers Field, Camp Springs, ENG 49-080-60-16(17), ANDREWS AIR FORCE BASE, MD. U. S. Eng., First and Douglas Sts. N. W., Wash. 25, D. C. Bids Dec. 9. CD 11/10.

† **Wright Contg. Co.**, Brookhaven Rd., Columbus, Ga., CA $772,246, est. $723,047, apron operational and washrack at John H. Towers Field, Camp Springs, ENG-49-080-60-19-(21), ANDREWS AIR FORCE BASE, MD. U. S. Eng., First and Douglas Sts. N.W., Wash. 25, D. C. Bids Nov. 24. CD 11/30, under LB.

BUILDINGS—LB & CA

Fort Homes, c/o Albert B. Meklenburg Organization, 220 E. Jericho Turnpike, Mineola, N. Y., Owner Builds, $450,000, 30 HOUSES on County Line Rd. south of Southern State Parkway, AMITYVILLE, N. Y.

Deerdale Gardens Home, c/o Lane Realty Co., 107-40 Queens Blvd., Forest Hills, N. Y., Owner Builds, $480,000, 30 HOUSES at Deer Park Ave. south of Sunrise Highway, BABYLON, N. Y.

Mandel Bros. & Southlawn Constr. Co. 307 Fifth Ave., New York 16, N. Y., CA $574,638 with alternates PRIMARY SCHOOL, DOBBS FERRY, N. Y. Bd. Educ. Union Free School Dist. No. 3, Town of Greenburgh, Westchester Co., Dobbs Ferry, N. Y. Bids Oct. 22. CD 10/28, under LB.

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $53,000, other public works $88,000, industrial buildings $110,000; other buildings $400,000. Also Foreign projects of $1,000,000 and more in size of interest to American contractors.

By Regions & Classes of Construction

(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED

New England	**Middle West**
Middle Atlantic	**Mississippi to Rockies**
South	**Far West**

PROPOSED WORK

Water Supply	**Public Buildings**
Sewers, Waste Disposal	**Mass Housing**
Bridges	**Commercial Buildings**
Streets & Roads	**Industrial Buildings**
Earthwork, Waterways	**Unclassified**

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.

BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.

SOON LETS CONTRACT: SLC

LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.

CD dates shown are of Construction Daily Issue in which last previous report was published.

OWNERS, ENGINEERS, ARCHITECTS, CONTRACTORS are invited to report their new jobs for listing in these reports when they meet or exceed the size minimums shown above. Address these news releases to J. A. Mahoney, REPORTS, ENGINEERING NEWS-RECORD, 330 W. 42 St., New York 36, N. Y.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over
ENR	Engineering News-Record
CD	Construction Daily

For additional reports see Construction Daily.

▲ **Stewart M. Muller Constr. Co.**, Inc., 47 S. River Ave., Croton-on-Hudson, N. Y., CA Est. $5,000,000. Mount Mercy College Project: PROVINCIAL HOUSE, MOTHER HOUSE, COLLEGE BLDG. and Our Lady of Victory ACADEMY, DOBBS FERRY, N. Y. Archdiocesan Bldg. Comn., 451 Madison Ave., New York 22, N. Y. Bids Dec. 9. CD 11/12.

Jackson Homes, c/o Lane Realty Co., 107-40 Queens Blvd., Forest Hills, N. Y., Owner Builds, $650,000 (addnl. section), 25 HOUSES, 72nd St. and 30th Ave., JACKSON HEIGHTS, N. Y.

Dutch Village Homes, c/o Karl Breithaupt, 39 S. Main St., Spring Valley, N. Y., Owner Builds, $480,000, 20 HOUSES, Rte. 306, 3 mi. north of Rte. 59, VIOLA, N. Y.

Pagano Constr. Co., 238 Quince St., Vineland, N. J., CA $500,000, CHURCH for St. Rose of Lima Roman Catholic Church, HADDON HEIGHTS, N. J. Roman Catholic Diocese of Camden, 721 Cooper St., Camden, N. J. Bids Dec. 1. CD 11/24.

Herbert Gillooly, 114 Jackson Ave., Rutherford, N. J., Owner Builds, $500,000, 3 story, 39-family garden APARTMENT, Washington Ave., RUTHERFORD, N. J. Leonard Feinen, 320 Lincoln Ave., Hasbrouck Heights, N. J., archt.

William C. Ehret Co., 1723 North Olden Ave., Trenton, N. J., LB $432,773, WORKHOUSE addn., TRENTON, N. J. Bd. Freeholders Mercer Co., Court House, Trenton, N. J. Bids Dec. 8. CD 12/2.

Walter Brucker & Co., New Britain, Pa., CA $574,200, RESIDENTIAL DEVELOPMENT (48), Lampost Rd., etc., DOYLESTOWN, PA. Owner, c/o general contractor.

L. J. Keller & Sons, Jefferson, Md., CA $642,081 1 story ADMINISTRATION and EDUCATION BLDG., 2 story steel, brick, limestone HOUSING, for Maryland School for Deaf, FREDERICK, MD. State of Maryland, Dpt. P. Imprvts., Baltimore, Md. Fenton & Lichtig, 2219 Maryland Ave., Baltimore 18, Md., archts.

▲ **E. Eyring & Sons**, 800 So. Conklin St., Baltimore 24, Md., LB $2,164,875, (9 bidders), Holabird JUNIOR HIGH SCHOOL, Delvale Ave., TOWSON, MD. Baltimore Co. Bd. Educ., Aigburth Rd., Towson 4, Md. Bids Dec. 10. CD 11/29.

▲ **John A. Volpe Constr. Co.**, 261 Constitution Ave., Wash., D. C., CA $3,500,000, HEADQUARTERS BLDG., 1st and 2nd Sts., Louisiana Ave. and Constitution Ave. N.W., WASH., D. C. United Brotherhood of Carpenters & Joiners of America, 222 E. Michigan St., Indianapolis, Ind. Bids Nov. 17. CD 11/16.

SOUTH

BUILDINGS—BA

▲ **Ga., Milledgeville**—HOUSING—BA 1/5—Milledgeville Housing Auth., 170 housing units. $1,800,000. Plans deposit $40. Extended date. Abreu & Robeson, 141 Walton St. N.W., Atlanta, archts. CD 12/11.

Ga., Hapeville—WAREHOUSE—BA 1/6—Owens-Illinois Glass Co., 1700 N. Westwood Ave., Toledo, O., 102,000 sq. ft. warehouse addn., loading dock. $700,000.

Ky., Murray—DORMITORY—BA 1/14—Commonwealth of Ky., Div. Purchases, Frankfort, 242 man dormitory (Orchard Heights Housing Project), Murray State College. Over $400,000. Lee Potter Smith & Assocs., 2120 Broadway, Paducah, archts. CD 11/16.

N. C., Raleigh—RESIDENCE—BA 1/19—Bd. Comrs. Wake Co., 617 Hillsboro St., nurses' residence-training school, $450,000. Plans deposit $50. William Moore Weber, 1917 Hillsboro St., archt. CD 7/8.

BUILDINGS—SLC

▲ **Fla., Riviera Beach**—ENGINEERING—Minneapolis-Honeywell Regulator Co., Semi-Conductor Div., 2753 4 Ave., Minneapolis, Minn., soon lets contract 1 story, 151 x 321 CB brick engineering bldg., incl. air-conditioning, heating and parking, Blue Heron Blvd. Ellerbe & Co., 333 Sibley St., St. Paul 1, Minn., archts.-engrs. CD 10/22.

HEAVY CONSTRUCTION—LB & CA

† **J. B. Denny, Jr.**, 1238 W. 26 St., Norfolk, Va., LB $613,823 est. $675,000 (12 bidders), ammunition storage facilities Langley Field, LANGLEY AIR FORCE BASE, VA. U.S. Eng., foot of Front St., Norfolk 1, Va. Bids Dec. 3. CD 11/24.

Smith & Crotty, P.O. Box 5892, Jacksonville, Fla., LB $573,799, lateral sewers, Project MES 15-15, Section C, JACKSONVILLE, FLA. City, City Hall, Jacksonville, Fla. Bids Dec. 8. CD 12/6.

Widell Assocs., Inc., 1824 Wiley St., Hollywood, Fla., CA $867,397, water treatment plant, water mains, POMPANO BEACH, FLA. City, City Hall, Pompano Beach, Fla. Bids Dec. 1. CD 12/8, under LB.

Sullivan, Long & Hagerty, 2028 2 Ave. N., Bessemer, Ala., LB $532,932, (8 bidders), WW facilities, extensions and mains, Contract A, HUNTSVILLE, ALA. City, City Hall, Huntsville, Ala. Bids Dec. 8. CD 11/20.

▲† **Delta Constr. Co.**, 162 Millsaps Ave., Jackson, Miss., LB $1,355,326, east runway, connecting taxiway and airfield lighting, U.S. Naval Auxiliary Air

Station, NAS, 29484 MERIDIAN, MISS. Dist. P Wks. Office, Sixth Naval Dist., Bldg. No. 13, U.S. Naval Base, Charleston, S. C. Bids Dec. 10. CD 11/9

† **Atlas Constr. Co.**, Box 56, Vidalia, La., LB $471,830 (7 bidders), channel enlargement, realignment Mile 25.3 to Mile 31.5, Amite River and Tributaries, Ascension and Livingston Parishes, CIVENG-16-047-60-83, LOUISIANA. U. S. Eng., foot of Prytania St., New Orleans 9, La. Bids Dec. 8. CD 11/9

KENTUCKY—Commonwealth of Ky., Dpt. Hys., Frankfort, **Buckman & Hansen & Roy Ryan Sons Constr. Co.**, 5416 Booneville Hy., Evansville, Ind., CA $642,198, 4 river piers on bridge over Kentucky River near Frankfort, I 64-4 (6): 54, Franklin Co. Bids Dec. 4. CD 12/11, under LB

BUILDINGS—LB & CA

English Constr. Co., Vienna, Va., LB $955,900 (6 bidders) Mark Twain Intermediate SCHOOL, FAIRFAX, VA. Fairfax Co. School Bd., Fairfax, Va. Bids Dec. 10. CD 12/3.

Doyle & Russell, Central National Bank Bldg., Richmond, Va., CA $981,329, SCHOOL, RICHMOND, VA. Collegiate School, Mooreland Rd., Richmond, Va. CD 12/3, under LB

▲ **Pioneer Constr. Co.**, Starky Rd., Roanoke, Va., CA Approx. $2,500,000, SHOPPING CENTER, ROANOKE, VA. Towers Shopping Center, Inc., Colonial and Brandon Ave., Roanoke, Va. CD 11/12

Harllee-Quattlebaum Constr. Co., Inc., P.O. Box 1457, Florence, S. C., CA Est. $500,000, WAREHOUSE, ABERDEEN, N. C. Amerotron Co., c/o contractor. CD 12/11.

Daniel Constr. Co., 429 N. Main St., Greenville, S. C., CA $933,000, 65,000 sq. ft. YMCA, GREENVILLE, S. C. Young Men's Christian Assn., 105 E. Coffee St., Greenville, S. C. Bids Oct. 21. CD 10/28, under LB

▲ **A. C. Samford, Inc.**, P.O. Box 1229, Albany, Ga., CA $2,187,500, women's DORMITORY, GREENVILLE, S. C. Furman University Bd. Trustees, Greenville, S. C. Bids Aug. 20. CD 8/27, under LB

▲ **R. E. Shoemaker Co.**, 245 S. 24 St., Phila. Pa., CA $2,000,000, 194 unit APARTMENT, ATLANTA, GA. Peachtree Road Apartments, c/o Heery & Heery, archts., 1722 Peachtree Rd., N. W., Atlanta, Ga.

▲ **Walsh Constr. Co.**, 711 3rd Ave., New York, N. Y., CA CEMENT PLANT expansion incl. 118 x 450 kiln, concrete storage silos, etc., CLINCHFIELD, GA. Penn-Dixie Cement Corp., 60 E. 42 St., New York, N. Y. W. R. Bendy, 6326 Bartner St., St. Louis, Mo., engr.

Central Constr. Co., P. O. Box 84, Decatur, Ga., LB $907,832, DORMITORY and STUDENT CENTER, DECATUR, GA. Columbia Theological Seminary, 701 Columbia Drive, Decatur, Ga. Bids Dec. 8. CD 5/18

R. B. Bennett, 1 Peachtree Bldg., Atlanta, Ga., Day Labor, $750,000, 59 RESIDENCES, Smyrna Heights Subdivision, SMYRNA, GA.

▲ **Arnold Constr. Co.**, 7 Murray Bldg., Palm Beach, Fla., LB $1,169,777, (8 bidders) Co-operative APARTMENT and swimming pool, Ocean Blvd., PALM BEACH, FLA. Florida Land Investment Corp., c/o Robson & Gesbocker, archts., 927 Belvedere Rd., West Palm Beach, Fla. Bids Nov. 27. CD 11/23

▲ **Mills & Jones**, 400-23 St. S., St. Petersburg, Fla., CA Est. $1,000,000, BANK addn., parking lot, ST. PETERSBURG, FLA. First National Bank, Central Ave. and 4 St., St. Petersburg, Fla. CD 11/25

Richardson Constr. Co., 3100 7 Ave. S., Birmingham, Ala., LB $442,223, est. $425,000, (5 bidders) 4 story, 22,000 sq. ft. rein.-con., brick, tile WING addn., BIRMINGHAM, ALA. Carraway Methodist Hospital, Inc., 1615 N. 25 St., Birmingham, Ala. Bids Dec. 8. CD 11/16

Perusini Constr. Co., 1720 28 Ave. S. Birmingham, Ala., LB $528,770, EXTENSION CENTER, Highway 72, HUNTSVILLE, ALA. University of Alabama, Tuscaloosa Ala. Bids Dec. 8. CD 11/30.

Barksdale & Le Blanc, Box 2867, Baton Rouge, La., LB $589,000, (13 bidders) Istrouma High School AUDITORIUM, BATON ROUGE, LA. East Baton Rouge Parish School Bd., 805 St. Louis St., Baton Rouge, La. Bodman & Murrell & Smith, 1155 Nicholson Dr., Baton Rouge, La., engrs.

▲ **Struck Constr. Co.**, 147 N. Clay St., Louisville, Ky., LB Over $2,000,000, (2 bidders), 5 story, 102,830 sq. ft. BANK addns., alteration, LOUISVILLE, KY. Kentucky Home Life Insurance Co., Ky. Home Life Bldg., Louisville, Ky. Citizens Fidelity Bank & Trust Co., lessee. Bids Dec. 3. CD 11/16

Allen Bros. Constr. Co., Box 7146, Memphis, Tenn., CA $600,000, Kingsport Downtowner HOTEL, KINGSPORT, TENN. Diversified Mgt. Corp., DuPont Bldg., Memphis, Tenn. George R. Thompson, 2158 Union Ave., Memphis, Tenn., archt. Awarded Nov. 20. CD 8/6.

▲ **L. B. Jackson Constr. Co.**, 50 Gleneck Rd., Asheville, N. C., CA $1,000,000, rental linen service PLANT, KNOXVILLE, TENN. National Linen Supply Co., 1015 N. Central Ave., Knoxville, Tenn. J. W. McCulla, 604 Inskip Rd., Knoxville, Tenn., engr. Awarded Dec. 9.

O'Brien & Padgett, 283 Scott, Memphis, Tenn., CA $500,000, 3 story, 23,000 sq. ft. OFFICE, MEMPHIS, TENN. Century Building Corp., N. Waldren Bldg., Memphis, Tenn. Martin & Adams, 3355 Poplar, Memphis, Tenn., archts. Awarded Dec. 4.

MIDDLE WEST

BUILDINGS—SLC

▲ **Wis., Oak Creek**—FACTORY—A. C. Spark Plug Div., General Motors Corp., 7-217 General Motors Bldg., Detroit, Mich., soon lets contract, 1 story, 336 x 644 ft. brick, precast concrete factory addn. Argonaut Realty Div., General Motors Corp., Argonaut Bldg., Detroit, Mich., engr. CD 9/25.

HEAVY CONSTRUCTION—LB & CA

▲ **OHIO**—State Hy. Dpt., State Depts. Bldg., Columbus, Zone 15. Bids opened 12/1.

O.—**Manix Brothers**, 1224 Fort Jefferson Rd., Greenville, O., LB $522,614, est. $561,900, (7 bidders), Type T-35 on B-219 and structures 4.357 mi. SR 49 (6.16) (12.16). Proj. 545. Darke Co.

O.—**Engle Constr. Co.**, P.O. Box 86, McArthur, O., LB $449,817, est. $501,200, (9 bidders), Type T-35 on B-19 1.985 mi. SR 75-0.00, 26.44. Proj. 546, Jackson and Lawrence Counties.

O.—**Arthur S. Langenderfer, Inc.**, 4690 W. Bancroft St., Toledo, O., LB $115,894, est. $156,100, (4 bidders), Type T-35 0.818 mi. USR 20-(9.83-10.18). Proj. 547, Lucas Co.

O.—**General Asphalt Paving Co.**, 500 Main Ct., S.E., Canton, O., LB $172,000, est. $207,300, (2 bidders), Type T-35 3.054 mi. USR 39-8.86. Proj. 550, Stark Co. CD 11/11

▲ **WISCONSIN**—State Hy. Comm., State Office Bldg., Madison. Bids opened 12/10.

Wis.—**L. G. Arnold, Inc.**, 2013½ N. Dewey, Eau Claire, Wis., LB $334,707, (16 bidders), grade, subbase 3.892 mi. Lake Delton-Madison Rd. (U.S.H. 12-C.T.H. T Sect.) Interstate Hy. 90, Contr. 1, Proj. I-90-2 (22)93. Sauk Co.

Wis.—**Ben Ruesch**, Medford, Wis., LB $219,724, (6 bidders), grade, subbase and base 3.338 mi. Nelson Lake-North County Line Rd., S.T. Hy. 27, Contr. 1, Proj. 7.08(9)(9). Sawyer Co.

Wis.—**Schuette Builders**, 3901 Custer St., Manitowoc, Wis., LB $573,192, (16 bidders), grade, base, Structure B-59-12, and concrete pavement 6.385 mi. S.T.H. 42-North County Line Rd., U.S. Hy. 141, Contr. 1, Proj. F 01-3(25). Sheboygan Co.

Wis.—**Rasmussen Constr. Co.**, 914 Oregon St., Oshkosh, Wis., LB $145,248, (13 bidders), b. conc. 7.57 mi. Green Bay-Dyckesville Rd., S.T. Hy. 57, Contr. 2, Proj. T 03-3(12). Brown Co.

Wis.—**Mathy Constr. Co.**, 524 Main St., La Crosse, Wis., LB $285,345, (10 bidders), b. conc. 11.288 mi. Packwaukee-North Co. Line Rd., U.S. Hy. 51, Contr. 1, Proj. F 05-2(30). Marquette Co.

Wis.—**J. W. Craig Co.**, 1814 N.E. California, Minneapolis, Minn., LB $112,434, (12 bidders), b. conc. 6.123 mi. Ringle-Hatley Rd., S.T. Hy. 29, Contr. 1, Proj. F 020-2(24). Marathon Co. CD 11/27

Tomaro Contractors, 2727 E. Layton Ave., Cudahy, Wis., LB $602,784, (4 bidders), water main in W. Clarke St., MILWAUKEE, WIS. City, City Hall, Milwaukee, Wis. Bids Dec. 10. CD 11/27.

▲ **MICHIGAN**—State Hy. Dpt., Mason Bldg., Lansing. Bids opened 12/9.

Mich.—**L. A. Davidson**, 213 E. St. Joseph, Lansing, Mich., LB $3,437,239, 3.9 mi. U.S. 27 expressway and six structures on section from Lincoln Rd. east of Alma north to M-46, Gratiot Co.

Mich.—**Cocke Contg. Co.**, 1116 Penobscot Bldg., Detroit, Mich. Charles J. Rogers, 14816 Grand River Ave., Detroit, Mich. and **Jutton-Kelly Co.**, 13240 Alber Ave., Dearborn, Mich., LB $1,914,736, 1.7 mi. grading, drainage structs., paving service roads, temporary roads, constr. requ[illegible]e and utility alterations on Southfield from no[illegible]ley Rd. north to Schoolcraft Ave., LB $855,199, 1.302 ft. dual 36 ft. roadways, vehicular grade separat[illegible] ramps, water mains, relocation electrical facilities [illegible] Edsel Ford Expressway from Vernier Rd. to south of 5-Mile Rd. in City of Harper Woods, both in Wayne Co.

Mich.—**Central Paving Co.**, Box 312, West Branch, Mich., LB $116,548, 22 ft. bit. aggreg. surf. 4 mi. from west county line easterly to M-64 then 4.9 mi. easterly from M-65, Alcona Co.

Mich.—**Detroit Concrete Products Corp.**, 1920A W. Davidson, Detroit, Mich., LB $149,024, 22 ft. bit. aggreg. surf. 3 mi. from Crawford County west from 2 mi. west of Crawford-Oscoda County line and in Oscoda Co. 8 mi. east from M-33, Crawford and Oscoda Counties.

Mich.—**MacLean Constr. Co.**, 731 E. Sheridan, Lansing, Mich., LB $401,815, 9.8 mi. structures 27 ft. wide aggreg. surf. and prime and double seal on M-46 from M-91 west to US 131, Montcalm Co. CD 11/23.

Mich.—**C. R. Hunt**, Cass City, Mich., LB $310,755, 5 mi. grading, drainage structures and prime and double seal in preparation for future surf. M-46 easterly from M-91.

Mich.—**D. J. McQuestion & Sons**, 4909 Huron, Dearborn, Mich., LB $473,047, 7 mi. grading, drainage structures and prime and double seal for future surf. M-46 west from M-37 and traffic betterment job at M-46 and Wolf Lake Rd., Muskegon Co. CD 11/24.

BUILDINGS—LB & CA

▲ **Metals Products, Div. Koppers Co., Inc.**, Koppers Bldg., Pittsburgh, Pa., CA, two electro-static precipitators to remove fly-ash at Lake Shore GENERATING PLANT, CLEVELAND, O. Cleveland Electric Illuminating Co., P. O. Box 500, 55 Public Sq., Cleveland, O. CD 5/1.

▲ **Place Homes, Inc.**, 1212 S. Walnut, South Bend, Ind., Owner Builds, $1,275,000, 35 HOMES, Lexington Green, GROVE CITY, O.

MISSISSIPPI TO ROCKIES

BUILDINGS—BA

Iowa, Estherville—HOME, etc.—BA 1/8—Sisters of the Sorrowful Mother, Holy Family Hospital, 4 story, 50x128 ft. sisters' home, 2 story chapel, $600,000. Hills, Gilbertson & Fisher, 6009 Wayzata Blvd., Minneapolis, Minn., archts.

▲ **Colo., Denver**—PLANT—BA About 1/20—Great Western Aggregates, Inc., Boston Bdg., lightweight aggregate plant, near here $3,000,000. Stearns-Roger Mfg. Co., 660 Bannock, Denver, engr. CD 9/11.

Neb., Grand Island—APARTMENTS—BA 1/29—Hall Co. Housing Auth., Court House, eleven 92-units apartments and community, "Fletcher Apartments," Golden Age Village, $611,000. CD 7/28.

HEAVY CONSTRUCTION—LB & CA

▲† **Hoosier Engineering Co.**, 1350 Holly St., Columbus, O., LB $3,080,053, est. $3,573,017, (11 bidders), Fort Peck Missouri River Basin Proj., transmission line, DC 5238, NORTH DAKOTA and MONTANA. Bureau Reclamation, Dpt. Interior, Glendive, Mont. Bids Dec. 10. CD 11/4.

▲† **Lox Equipment Co.**, 1401 Middleharbor Rd., Oakland, Calif., CA $3,246,219 Schedule B, Cyrogenic Vessels, Ellsworth Air Force Base, ENG-25-066-60-35, RAPID CITY, S. D. U. S. Eng., 1709 Jackson St., Omaha 2, Neb. Bids Dec. 3, awarded Dec. 9. CD 12/7, under LB;
Trane Co., 2nd at Cameron St., LaCross, Wis., CA $584,022, Schedule G, air-conditioning and refrigerator, Ellsworth Air Force Base, ENG-25-066-60-35. Awarded Dec. 9.

P. C. Sorenson Co., 2205 S. Industrial St., Dallas, Tex., LB $482,214, est. $499,700, (10 bidders), 60 and 66 in. concrete water main from Elm Fork plant to the St. Louis & Southwestern R. R., Whitlock Lane and Josey Lane, DALLAS, TEX. City, City Hall, Dallas, Tex. CD 12/5/58.

Memorial Village Water Supply Corp., 22 Hedwig Circle, Houston, Tex., Own Forces, $425,000, water distr. lines for Piney Point, Hunters Creek, Hedwig, HOUSTON, TEX.

H. L. Williams Constr. Co., Box 537, Carrollton, Tex., LB $159,327, ("base plus alternate") sanitary sewer lines, PLANO, TEX. City, City Hall, Plano, Tex. Forrest & Cotton, Vaughn Bldg., Dallas, Tex., engrs. Bids Dec. 4. CD 3/18/59;
Clyde Smith Co., Box 791, Austin, Tex., LB $144,633, sewer treatment plant, (Plano, Tex.).

▲† **U. S. Eng.**, P. O. Box 1538, Albuquerque, N. M., cancelled bids to have been opened Dec. 9, sage facilities, Kirtland Air Force Base, Inv. No. ENG-29-005-60-38, ALBUQUERQUE, N. M. $5,000,000-$10,000,000. CD 11/10

BUILDINGS—LB & CA

Abell-Howe Co., 1114 Shaver Rd. N.E., Cedar Rapids, Iowa, CA Est. $750,000, 2 story, 67,000 sq. ft., tilt-up concrete walls, brick and plate glass FACTORY and OFFICE, CEDAR RAPIDS, IOWA. The Nissen Trampoline Co., 215 A Ave. N.E., Cedar Rapids, Iowa, Edward D. Broderick, 1st Ave., Cedar Rapids, Iowa, lessee.

D. C. Bass & Sons, Bass Bldg., Enid, Okla., LB $939,993, brick, concrete, etc. JUNIOR HIGH SCHOOL WING, HUGOTON, KAN. High School Dist. No. 3 and Rural School Dist., Hugoton, Kan. John W. Hines & Assoc., 447½ Ida St., Wichita, Kan., archts. Jamison Eng. Co., 2226 S. Belmont St., Wichita, Kan., engr. Bids Nov. 24. CD 7/30.

Fox & Jacobs Constr. Co., Inc., 4926 Greenville St., Dallas, Tex., Owner Builds, $412,500, 28 DWELLINGS, Coral Hills Community, DALLAS, TEX. CD 11/12.

▲ **Frontier Builders, Inc.**, c/o O. Welborn Smith, Jr., 2151 Fort Worth Ave., Dallas, Tex., Owner Builds, $427,000, 31 DWELLINGS; $400,000, 24 DWELLINGS; $441,275, 33 DWELLINGS, at Camp Wisdom and Houston School Rds., "Hidden Valley" Subdivision, DALLAS, TEX. Grand total $1,268,275. CD 11/12

Mixon Constr. Co., 305 Preston Royal Shopping Center, Dallas, Tex., CA $438,000, 14 DWELLINGS, Northwood Hills Subdivision; CA $436,225, 11 all masonry DWELLINGS, Northwood Hills Subdivision, DALLAS, TEX. W. T. Troth, 4539 N. Central Expressway, and Mixon Constr. Co., 305 Preston Royal Shopping Center, Dallas, Tex. CD 10/21.

James Bryant, Contractor, 5300 Heatherbloom St., Houston, Tex., Owner Builds, $410,000, 26 DWELLINGS, HOUSTON, TEX. CD 11/27.

R. F. D. Homes, Inc., c/o Ed. Clarac, pres., 7728 Long Point, Houston, Tex. Separate Contracts, $421,400, 13 DWELLINGS; $416,000, 10 DWELLINGS, Memorial Plaza, HOUSTON, TEX. CD 11/20

▲ **H. A. Lott, Inc.**, Box 25005, Houston, Tex., LB $1,177,400, est. $400,000, (6 bidders), N. & O. units, COOPERATIVE HOME and GIRLS' DORMITORY, Proj. Tx.-41-CH-104, HUNTSVILLE, TEX. Sam Houston State Teachers College, Huntsville, Tex. Bids Dec. 3. CD 11/25

▲ **Ralph M. Parsons**, 617 W. 7th St., Los Angeles, Calif., CA Est. $5,000,000, design and construct ORIENTED POLYOLEFINS PLANT, PORT NECHES, TEX. Goodrich-Gulf Chemicals, Inc., 3121 Euclid Ave., Cleveland 13, O.

Joe Danna Constr. Co., 5526 Dyer St., Dallas, Tex., Owner Builds, $545,000, 45 DWELLINGS, RICHARDSON, TEX. CD 12/3.

Olmos Lumber Co., 2818 N. McCullough Ave., San Antonio, Tex., Separate Contracts, $432,500, 22 DWELLINGS, Harmony Hill Subdivision, SAN ANTONIO, TEX. CD 12/4.

FAR WEST

HEAVY CONSTRUCTION—BA

▲† **Calif., Beale Air Force Base**—WS 107-A-2, T-5, TITAN MISSILE SILOS, etc.—BA 1/12—U. S. Eng., 1209 8th St., Sacramento, WS 107-A-2, T-5, Titan

missile silos, equip. and propellant terminals, powerhouse, entry portal, silos, blast locks, tunnels, etc. Complex 1A, vic. Lincoln, Placer Co.; Complex 1B near Pennington, Sutter Co.; Complex 1C near Chico, Butte Co.; Beale Air Force Base. Spec. 2639. ENG-04-167-70-23. $42,000,000. Extended date, CD 11/30.

▲ **Ariz., Phoenix**—BA 1/19—City, City Hall, water pipe line from reservoirs at 64th St. and Thomas to southside of here, $1,222,500. Art Vondrick, city utilities engr. CD 5/28/57

BUILDINGS—BA

Calif., Cupertino—SCHOOL—BA 1/5 Cupertino Union Elementary School, 10300 Vista Dr., Cupertino. Eaton Elementary School, $500,000. Plans deposit $50. Kal H. Porter, 3850 Middlefield Rd., Palo Alto, archt. CD 5/6

HEAVY CONSTRUCTION—LB & CA

▲ **Fisher Contg. Co.**, 2201 S. 19 Ave., Phoenix, Ariz., CA $1,428,573, installing 6 mi. storm drain, 19 Ave. from Grand Canal to Salt River, PHOENIX, ARIZ. City, City Hall, Phoenix, Ariz. Bids Dec. 1, awarded Dec. 8. CD 12/8, under LB.

† **Lewis Hopkins Co.**, Pasco, Wash., LB $667,358 (8 bidders), earthwork, concrete lining and structures for Block 88 lateral wasteways and drains, Columbia Basin Proj., Othello, Washington and Grant Counties. Spec. DC-6264. WASHINGTON, Bureau Reclamation, Dept. Interior, Bldg. 1A, Denver Federal Center, Denver, Colo. Bids Dec. 8. CD 11/4.

R. C. Hughes Co., N2105 Airport, Spokane, Wash., CA $469,489, 7 mi. steel tower transmission line from Priest Rapids to Midway, WASHINGTON, Grant Co. P.U.D. No. 2, Ephrata, Wash. (Correction—contract), CD 12/4, under CA.

▲ **WASHINGTON**—State Hy. Comm., Olympia.
Mac Rae Bros. Constr. Co., 5802 2 Ave. S., Seattle, Wash., CA $2,330,334, Seattle Freeway, overcrossing, Spokane Blvd., FAP No. F-BI-5-3 (7), 170, King Co. Bids Dec. 8, awarded Dec. 9. CD 12/10, under LB.
City, City Hall, Tacoma, Wash., rejected bids Nov. 30, baseball stadium with rein.-con. grandstand, masonry bleachers, admin. bldg., team facilities, field and parking, TACOMA, WASH. LB $534,700. New bids Dec. 14. CD 12/4, under LB.

▲ † **Montag, Halvorson, McLaughlin Assoc.**, 2005 NE Hiway 99, Portland, Ore., LB $32,381,096, est. $41,828,682 (8 bidders), Nisqually-Steilacoom-John Day Dam, Klickitat Co., ENG-45-164-60-2, OREGON and WASHINGTON, U.S. Eng., City-County Airport, Walla Walla, Wash. Bids Dec. 10. CD 11/15.

▲ **OREGON**—State Hy. Comm., Highway Bldg., Salem. Bids opened 12/8.
Ore.—Roy L. Houck Sons, 1585 N. 20th St., Salem, Ore., LB $1,083,448 (4 bidders), stone base, paving 6.1 mi., Pacific Hy., Proj. FAP I-5-4 (29) 198, Lane Co.
Ore.—Calkins Crushing Co., Box 447, Oceanlake, Ore., LB $101,851 (6 bidders), grading, oiling 2.26 mi., Siletz Hy., Proj. FAP S-214 (8), Lincoln Co.
Ore.—Dorman Constr. Co., 2318 E. 1st St., Vancouver, Wash., LB $442,029 (6 bidders), stone base, paving 4.07 mi., Multnomah Falls-Dodson section, Columbia River Hy., Proj. FAP I-80N-2 (13) 28, Multnomah Co.
Ore.—Vernie Jarl, 448 S. Roberts Ave., Gresham, Ore., LB $474,388, grading, paving 6.74 mi., Grass Valley-Kent section, Sherman Hy., Proj. FAP E-40 (5), Sherman Co.
Ore.—Warren Northwest, Inc., Box 5072, Portland, Ore., LB $354,305 (6 bidders), grading, paving 3.64 mi., Camp Adair-Lewisburg Section, Pacific Hy., West, Proj. FAP E-40 (6), Benton Co. CD 11/25.
OREGON—State Hy. Comm., Highway Bldg., Salem. Bids opened 12/8.
Ore.—Pacific Concrete Co. & Otis P. Jordan Jr., 10401 NE Marx St., Portland, Ore., LB $603,333 (9 bidders), dual rein.-con. DG box-girder structures on new alignment, Pacific Hy. over Rogue River, Proj. FAP I-5-1 (16) 46, Jackson Co.
Ore.—Sig Anderson, 8th and Teakwood Sts., Coos Bay, Ore., LB $165,070 (12 bidders), twin rein.-con. DG 355 ft. structures to carry Pacific Hy. over Game Farm Rd. and SP R.R. tracks, Proj. FAP I-5-4 (38) 196, Lane Co.
Ore.—Ausland Constr. Co., Box 437, Grants Pass, Ore., LB $95,585 (12 bidders), 168 ft. Pacific Hy. overcrossing of Beacon Dr., Proj. FAP I-5-1 (17) 58, Josephine Co. CD 11/25.
▲ **CALIFORNIA**—State Div. Hys., 1120 N. St., Sacramento. Bids opened 12/9.
Madonna Constr. Co., P.O. Box 910, San Luis Obispo, Calif., LB $1,481,509 (5 bidders), grading, surf. 2.3 mi. 4 lane freeway US Hy. 101 through Pismo Beach incl. traffic separation bridges and interchange facilities, bridge to carry Hinds Ave. traffic over freeway, bridge to take freeway over Wadsworth Ave. and pedestrian undercrossing at Pismo St., San Luis Obispo Co. CD 11/5.
Charles L. Harney, Inc., 575 Berry St., San Francisco, Calif., CA $981,889, Geary Expressway underpass, Fillmore St., Spec. 21,900, SAN FRANCISCO, CALIF., City and County of San Francisco, Dept. P. Wks., City Hall, San Francisco, Calif. Bids Nov. 18. CD 12/3, under LB.
▲ † **Hawaiian Dredging Co.**, 1350 Ala Moana, Honolulu, Hawaii, LB $1,269,000, est. $1,527,634 (7 bidders), two leaf bridge superstructure, incl. road work, utilities, Honolulu Harbor, IFB ENG-94-612-60-28, HONOLULU, HAWAII, U.S. Eng., Honolulu Bldg. 96, Fort Armstrong, Honolulu, Hawaii. Bids Dec. 10. CD 11/12.

BUILDINGS—LB & CA

▲ **Bank Bldg. & Equipment Corp. of America**, 1130 Hampton St., St. Louis, Mo., CA Est. $2,250,000, OFFICE, NAMPA, IDAHO. Grange Mutual Life Co., Nampa, Idaho.
Elford Constr. Co., 1750 State St., Bellingham, Wash., LB $868,500 (8 bidders), general contract, 60,000 sq. ft., rein.-con. GYMNASIUM addn., BELLINGHAM, WASH. Western Washington College of Educ., Bellingham, Wash. Bids Dec. 9. CD 12/4.
▲ **Macco Corp.**, 14409 Paramount Blvd., Paramount, Calif., CA $1,504,000, 94 stucco DWELLINGS, Oahu Pl., COSTA MESA, CALIF. Glenverde Homes, Inc., Box 65, Balboa Island, Calif.
Tumblin Co., 2901 H St., Bakersfield, Calif., LB $722,000 (10 bidders), 33,500 sq. ft. SCIENCE BLDG. and 1 story ANIMAL BLDG., Fresno State College, FRESNO, CALIF. State Div. Architecture, 1120 N. St., Sacramento, Calif. Bids Dec. 8. CD 11/9.
▲ **Laramore Constr. Co.**, 1111 Beverly Blvd., Whittier, Calif., CA $1,367,780, 220 DWELLINGS, Tract 3435, GARDEN GROVE, CALIF. Bowmar Bldrs., Inc., 1111 Beverly Blvd., Whittier, Calif.
L. G. Robinson, 5641 Rosemead Ave., Temple City, Calif., CA $858,200, 101 DWELLINGS, Tract 3453, GARDEN GROVE, CALIF. Meadow Homes, 620 Vance St., Santa Ana, Calif.
Hilp & Rhodes, 918 Harrison St., San Francisco, Calif., CA $800,000, 142,000 sq. ft. STORE and WAREHOUSE addn., LOS ANGELES, CALIF. Sears, Roebuck & Co., 2650 E. Olympic Blvd., Los Angeles, Calif. Bowen & Bowen, Inc., 2873 Colorado Blvd., Los Angeles, Calif., archts.
▲ **Merco Constr. Co.**, 6057 Venice Blvd., Los Angeles, Calif., CA $4,259,980, PIERCE COLLEGE addn. Phase II, Woodland Hills, LOS ANGELES, CALIF. Bd. Educ., 1425 S. San Pedro St., Los Angeles, Calif. Bids Nov. 13. CD 11/17, under LB.
▲ **Continental Constr. Co.**, 4671 24th St., Sacramento, Calif., CA $1,677,000, St. Pius X SEMINARY, incl. chapel, administration and classroom, 2 story housing unit for faculty and 2 two story housing units for seminarians, 58 acre site, south of SACRAMENTO, CALIF., Sacramento Catholic Diocese, The Chancery, 1119 K St., Sacramento, Calif. Bids Nov. 25, awarded Dec. 9. CD 12/1, under LB.
Chalmers & Borton Co., Hutchinson, Kan., CA $779,000 (5 bidders), GRAIN STORAGE ELEVATOR addn., STOCKTON, CALIF. Stockton Elevators, 25 California St., San Francisco, Calif. Bids Dec. 4. CD 12/3.
Wahiawa Machine Shop, 824 K California St., Honolulu, Hawaii, LB $458,841 (13 bidders), SCHOOL, A-B and C-44 car parking space, HONOLULU, HAWAII, City and Honolulu County, King and Punchbowl Sts., Honolulu, Hawaii. Bids Dec. 10. CD 11/27.

CANADA

HEAVY CONSTRUCTION—LB & CA

▲ **Canadian General Electric Co. Ltd.**, 214 King St. W., Toronto, Ont., CA Est. $8,500,000, twelve 60,000 hp. hydro-electric generators, power project at Carillon, Ottawa River, 35 mi. west of Montreal, QUEBEC. Hydro Electric Power Comm. of Quebec, 107 Craig St. W., Montreal, Que. Awarded Dec. 10. CD 11/25/45.
▲ **English Electric Co. Ltd.**, Stafford, England, CA $3,625,000, six water wheel generators for 201 kw hydroelectric power station, Squaw Rapids, SASKATCHEWAN, Saskatchewan Power Corp., 1739 Cornwall, Regina, Sask. Bids Oct. 10. Awarded Dec. 4. CD 10/12.

BUILDINGS—LB & CA

B. G. Thiesen Constr. Co. Ltd., 963 Montrose Rd., Niagara Falls, Ont., CA Est. $400,000, (14 bidders), 160 x 180 ft., brick, block FACTORY, 60 x 80 ft. OFFICE, NIAGARA FALLS, ONT. Bissell Ltd., c/o Donald N. Chapman, archt., 1846 Glenholme Ave., Niagara Falls, Ont. Bids Dec. 1. CD 12/1.

PROPOSED PROJECTS

WATER SUPPLY

Calif., Napa—City, City Hall, bond election Jan. 26, distribution reservoir and pipe line sys., $965,000.
▲ **O., Oregon**—City, City Hall, 5330 Seaman Rd., intake crib in Lake Erie northeast of Reno Beach, water treatment plant, 4 mgd. capacity, pumping station, $4,800,000. Finkbeiner, Pettis & Strout, 2130 Madison Ave., Toledo, consult. engrs. CD 11/30.
▲ **S. D., Rapid City**—City, City Hall, water treatment plant, $3,000,000. CD 10/10/56.
▲ **Tex., Fort Worth**—Tarrant Co. W. C. & I. D. No. 1, voted $55,000,000 bonds Dec. 2, water reservoir, Cedar Creek, near Corsicana and 79 mi. pipeline to bring water into city. Freese, Nichols & Endress, 407 Danciger Bldg., consult. engrs. (Correction—owner). CD 12/8.

SEWERS, WASTE DISPOSAL

Calif., North Sacramento—Hagginwood Sanitary Dist., 805 Eleanor Ave., defeated bonds Dec. 1, sewage treatment plant and modernize sewage facilities, $670,000. CD 11/9.
▲ **Conn., Branford**—Town, Town Hall, 6.35 mi. branch and lateral sewers, force mains, pumping station, Short Beach, $575,000. CD 8/22/56; 5.75 mi. branch and lateral sewers, outfall sewer, sewage treatment plant, Stoney Creek, $830,000; 3.75 mi. branch and lateral sewers, force main, pumping station, Branford Hills, $370,000.
Conn., Greenwich—Town, Town Hall, voted $850,000 bonds Dec. 2, incinerator, Chickahominy, $600,000. William Riasch, 61 Hilton Ave., Garden City, N. Y., consult. engr. CD 11/26.
▲ **Conn., Seymour**—Seymour Redevelopment Agency, Main St., install storm and domestic sewers, new walks and curbs, paving streets and parking lots, demolition, Second St. area, $2,000,000. Clarke & Pearson, E. Main St., Ansonia, consult. engrs.
▲ **Fla., Clearwater**—Bd. Comrs. Pinellas Co., Courthouse, sanitary sewers, Boca Ciega and McKay Creek areas, $1,500,000. Jack F. Cooper & Assocs. and Briley Wild & Assocs., 2320 NE 171 St., North Miami Beach, consult. engrs. CD 10/24/56.
▲ **Georgia**—Jekyll Island State Park Auth., 125 State Judicial Bldg., Atlanta, sanitary sewerage system, Jekyll Island State Park, Jekyll Island (Brunswick), $1,650,000. Wiedeman & Singleton, P. O. Box 1878, Atlanta, consult. engrs.
▲ **Ill., Godfrey**—Village, Village Hall, sanitary sewerage, incl. treatment plant and disposal facilities, $1,076,000. Bids in 1960.
▲ **Ky., Okaloosa**—Okaloosa Sewer Dist., Blue Lick Rd., sanitary sewage treatment plant and collection sys., incl. sewers, manholes, service connections, pumping stations, etc. $1,750,000. Alfred Lefeber & Assocs., 2923 Woodburn Ave., Cincinnati, O., consult. engrs. CD 10/30/58.
▲ **Ky., Paducah**—City, City Hall, sewerage sys. expansion, $1,600,000. Burns & McDonnell, 95th and Troost Ave., Kansas City, Mo., consult. engrs. CD 11/8/54.
Miss., Hookins—City, City Hall, storm sewerage sys., $750,000. P. S. Sidney-Smith, c/o owner, staff engr.
▲ **N. J., Trenton**—Ewing-Lawrence Sewerage Auth., 600 Whitehead Rd., 1st phase, sewerage extension sys., $3,250,000. Constr. in Spring. Buck, Seifert & Jost, 112 E. 19 St., New York, N. Y., consult. engrs. CD 6/1.
Pa., Hanover—Penn Twp., sanitary sewers, pumping stations, $950,000. LeCates & Sacra, 30 S. Queen St., York, consult. engrs.
Tenn., Dayton—City, City Hall, sanitary sewer extensions, $825,000. Albert Switzer & Assocs., 4914 N. State St., Jackson, Miss., consult. engrs.
B. C., Alberni—City, City Hall, sewerage sys., $565,000. Associated Engineering Services, Ltd., 2256 West 12 St., Vancouver, consult. engrs. Bids in January.

BRIDGES

▲ **RHODE ISLAND**—State R. I. & Prov. Plans, Div. Purchase, State House, Providence.
Providence and East Providence—relocate Red Bridge, $3,498,000. Constr. 1961-62.
▲ **Va., Newport News**—Chesapeake & Ohio Ry. Co., T. F. Burris, ch. engr., C. & O. Bldg., Richmond, underpasses, Centre Ave. and Main St., $1,729,500.

STREETS AND ROADS

Ill., Rock Island—City, City Hall, street paving 14 Ave. and 24 St., $500,000.
▲ **MARYLAND**—State Rds. Comm., 300 W. Preston St., Baltimore, Zone 3.
Prince George Co.—preliminary sketches section Washington Circumferential Highway 2.16 mi., incl. bridges and interchange sections and Anacostia Freeway near Washington, D. C., Contr. P 722-39 and 52. Approx. $3,000,000. Norman Pritchett, c/o owner, ch. engr. A. L. Grubb, c/o owner, Ch. Bureau of Bridges. Bids March or April 1960. CD 5/14/56.
▲ **NEW YORK**—State Dpt. P. Wks., State Office Bldg., Albany.
Chautauqua Co.—2.5 mi. section North-South arterial, City of Jamestown, incl. 950 ft. bridge to carry new route over Chadakoin River and Erie R. R., FAI Project, $1,000,000.
NEW YORK—State Dpt. P. Wks., State Office Bldg., Albany.
Washington Co.—reconstr. 3 mi. Rte. 22 in vicinity of Granville, FAI Project, $500,000.
▲ **PENNSYLVANIA**—Pa. Hys. Dpt., 506 North Office Bldg., Harrisburg.
Butler Co.—10.5 mi. Interstate Rte. 79 between Zelienople and Portersville (section of proposed Erie-Pittsburgh Freeway), $8,000,000. Swindell-Dressler Corp., Aspinwall, Pittsburgh, consult. engrs. W. R. Froehlich, c/o owner, ch. engr.
▲ **PENNSYLVANIA**—Pa. Hys. Dpt., 506 North Office Bldg., Harrisburg.
Greene Co.—4.86 mi. modernization T.R. 221 between U.S. Rte. 19 and T.R. 188, $500,000. Michael R. Cozza & Assocs., 314 Hays Ave., Pittsburgh, consult. engrs.
Northampton Co.—spur highway connecting center Bethlehem with U.S. Rte. 22, 3.6 mi. (Interstate), $5,000,000. A. L. Wiesenberger Assocs., 529 Hamilton, Allentown, consult. engrs. W. R. Froehlich, c/o owner, ch. engr.
▲ **PENNSYLVANIA**—Pa. Hys. Dpt., 506 North Office Bldg., Harrisburg.
Jefferson Co.—8 mi. section Keystone Shortway from Rte. 36, Brookville, to near Emericksville, Eastern half, Brookville By-pass (Interstate), $5,500,000. Buchart Engineering Corp., 612 W. Market St., York, consult. engrs. W. R. Froehlich, c/o owner, ch. engr. CD 7/23/58.
▲ **PENNSYLVANIA**—State Hy. Dpt., 405 North Office Bldg., Harrisburg.
Philadelphia Co.—2.35 mi. section Delaware Expressway

between Tioga St. and Kennedy Frailey Sts. (Interstate). $19,700,000. Albright & Friel, Inc., 3 Penn Central Plaza, Phila., consult. engr. W. R. Froehlich, c/o owner, ch. engr. CD 2/21/57.

▲ **RHODE ISLAND**—State R. I. & Prov. Plants, Div. Purchase, State House, Providence,

Charlestown—resurf. Rte. 1, Quonochongtaug Rd. to east end 4-lane section, Proj. No. 206, $93,000.

Cranston—Cranston St., Atwood Ave. to Gansett, Proj. 310, $247,000. Constr. 1961-62.

East Providence—highway work Roger William Ave. North Broadway to Newport Ave., $440,000. Constr. 1961-62.

reconstruction Pleasant St., Proj. 314, $88,000. Constr. 1961-62.

Glocester—reconstruction Angan Wade Rd. R. I. 101 Snake Hill Rd. to R. I. 102, Proj. 316, $192,000. Constr. 1961-62.

Johnston and Providence—U. S. 6, Freeway-Atwood Ave. to Olneyville interchange, Proj. 103, $3,485,000. Constr. 1961-62.

Middletown and Newport—reconstruction Bliss Rd. and Green End Ave. Broadway to Aquidneck Ave., $131,000. Constr. 1961-62.

Middletown—reconstruction Aquidneck Ave., East Main Rd. to Newport Lines, Proj. 207. Constr. 1961-62.

North Kingston—relocate Old Tower Rd. Shady Lea to Talbot's Corner, $1,172,000. Constr. 1961-62.

North Smithfield—reconstruction Iron Mine Rd. Louisquisset Pike Farnum Pike, Proj. 319, $233,000. Constr. 1961-62.

Portsmouth—Connector-Island Park to Sakonnet River Bridge, Proj. 313, $600,000. Constr. 1961-62.

Providence—Louisquisset Pike-Admiral St. to Interstate No. 95 at Chalkstone, Proj. 107, $500,000. Constr. 1961-62.

Huntington Ave. Freeway—Olneyville Interchange to Interstate No. 95; Gaspee St., Proj. 105, $234,000. Constr. 1961-62.

Smithfield—reconstruction Douglas Pike with Spur to Farnum Pike in Smithfield, Proj. 321, $296,000. Constr. 1961-62.

South Kingston and Charlestown—U. S. No. 1 Freeway, Dillon Corner to 4-lane Divided Blvd., $2,340,000. Constr. 1961-62.

South Kingston—reconstruction Old Kingston Rd. Post Rd., Kingstan Rd., Proj. 322, $320,000. Constr. 1961-62.

Tiverton—Southern N. E. Thruway R. I. No. 138 Sakonnet R.R. Bridge to Mass. State Line (Second Section), Proj. 104, $1,750,000. Constr. 1961-62.

Warren and Barrington—East Shore Freeway-Wampanag Trail at Barrington Line to Franklin St., $1,206,000. Constr. 1961-62.

Westerly—Trunk Highway Area U. S. 1, Interchange 95, (new location), $2,050,000. Constr. 1961-62.

▲ **RHODE ISLAND**—State R. I. & Prov. Plants, Div. Purchase, State House, Providence.

Cranston Co.—Lincoln Ave. Freeway—Occupassituxet to New London Ave., Proj. 101, $2,000,000.

Pawtucket Co.—highway work for Pawtucket R.R. Bridge to Massachusetts State Line, Interstate Freeway Proj. No. 6.

Providence Co.—highway work, Aborn to Smith Sts., incl., ramps to Huntington Freeway, Interstate Freeway Proj. 3, $4,250,000.

Thurbers Ave. to Public St. Interstate Freeway Proj. No. 4, $2,500,000.

highway work, Smith to Charles Sts., incl. 50% Louisquisset Pike, Interstate Thruway Proj. No. 5, $1,500,000.

Charles St. to Pawtucket City line, Freeway (Interstate) Proj. No. 7, $312,000.

highway work Elmwood to Thurbers Aves., Interstate Freeway Proj. No. 8, $464,000.

Warwick Co.—highway work R. I. Rte. 2 Quaker Lane to Lincoln Interstate Freeway Proj. No. 11, $827,000. Constr. 1961/62.

▲ **Tex., Galveston**—City, City Hall, (P-Tex-3074) street imprvs. $1,507,950. Turner & Collie Consulting Engineers, Inc., 111 C&I Life Bldg., Houston, Zone 2, consult. engr.

Wash., Walla Walla—Walla Walla Co., Courthouse, relocate 10 mi. Matthews Rd. to provide access to Lower Monumental damsite on Snake River, $500,000. B. L. Smith, co. engr.

EARTHWORK, WATERWAYS

▲ **Ore., Eugene**—Eugene Water & Electric Bd., City Hall, Carmen-Smith hydroelectric project, 90,000 kw, $25,912,000. Cornell, Howland, Hayes & Merryfield, Corvallis, consult. engrs. Survey by Bechtel Corp., 612 S. Flower St., Los Angeles, Calif., recommended enlarging project. CD 1/20.

▲ **Pennsylvania**—Dpt. Forests & Waters, Educ. Bldg., Harrisburg, replace Kernsville impounding basin along Schuylkill River, Berks Co., $336,600; floor walls and levees, Lehigh River and tributaries, Northampton Co., $750,000. CD 10/2.

AIRPORTS

▲† **Alaska, Clear**—COMPOSITE BLDG., etc.—U. S. Eng., P. O. Box 7002, Anchorage, Composite Bldg. No. 2 Phase 2. Bids in February. Composite Bldg. No. 1 Phase 2. Bids in March. Over $3,000,000; maintenance shop. Over $1,000,000. Bids in January; passageway extension. Over $1,000,000. Bids in February, Clear Air Force Station.

▲† **Alaska, Fire Island**—RADAR TOWER, etc.—U. S. Eng., P. O. Box 7002, Anchorage, radar tower, $150,000. Bids in December; primary electric power installation. Over $1,000,000. Bids in February, Fire Island Air Force Station.

† **Alaska, Galena**—MULTI-CUBICLE MAGAZINE STORAGE—U. S. Eng., P. O. Box 7002, Anchorage, multi-cubicle magazine storage, Galena Air Force Base. Over $500,000. Bids in February.

▲† **Alaska, Indian Mountain**—PRIMARY ELECTRIC POWER INSTALLATION, etc.—U. S. Eng., P. O. Box 7002, Anchorage, primary electric power installation. Over $1,000,000. Bids in February; radar tower, $150,000. Bids in December, Indian Mountain Air Force Base.

▲ **Colo., Denver**—RUNWAY—City and Denver Co., City and County Bldg., extension, North-South Runway, Stapleton Airfield to handle jet airliners $12,000,000. Boduroff & Meheen, 3495 South Bannock, Englewood, consult. engrs. CD 5/22.

† **Mont., Havre**—ELECTRIC POWER FACILITIES—U. S. Eng., 1519 S. Alaskan Way, Seattle 4, Wash.; electric power facilities, Havre Air Force Base. Over $500,000. Bids in March.

▲† **Wash., Blaine**—RADAR TOWER, etc.—U. S. Eng., 1519 S. Alaskan Way, Seattle, Zone 4, radar tower and modification electrical distr. sys., $1,280,000. R. W. Beck & Assocs., Tower Bldg., Seattle, Zone 1, consult. engrs. CD 10/14.

LATIN AMERICA

▲ **Argentina, Buenos Aires**—FORGE PLANT—Suinco Establishment, Liechtenstein, plans by Rodolfo A. Albornoz, Acevedo 2141, Buenos Aires, Argentina, forge plant, $4,600,000.

▲ **Argentina, Chubut**—TEXTILE PLANT—Prensyl S.A.I.C.y.F., Rawson, Chubut, Argentina, textile plant, $1,700,000.

▲ **Brazil, Rio de Janeiro**—CRUDE LINE—Petroleo Brasileiro S.A., Govt. of Brazil, Rio de Janeiro, 70 mi. 22 in. crude line from Sao Sebastiao to Subatao, $2,660,000.

PUBLIC BUILDINGS

Ala., Dothan—COURTHOUSE—Houston Co. Bd. Revenue, Courthouse, plans by Joseph L. Donofro, 4 story, 60,000 ft. courthouse, $817,000. CD 6/2/53.

▲ **Calif., Carmichael**—SCHOOLS—San Juan Unified School Dist., 3738 Walnut Ave., voters approved $45,000,000 school program for next five years incl. $15,000,000 general obligation bond issue and authority to borrow $30,000,000 from State for school buildings.

Calif., Hemet—SCHOOL—Hemet Valley Unified School Dist., 831 E. Devonshire, plans by Caughey & Ternstrom, 922 N. La Cienega Blvd., Los Angeles, 40,000 sq. ft., frame, stucco Hemet Junior High School, $600,000. CD 3/31.

▲ **Calif., Lompoc**—SCHOOL—Lompoc Union School Dist., plans by Pierre Claeyssens, 11941 Wilshire Blvd., Los Angeles, Calif., 126,280 sq. ft. concrete block high school, $2,000,000.

▲† **Calif., Redding**—POST OFFICE—General Services Admin., 19 F St., N. W., Wash. 25, D. C., 3 story, basmt., post office, $1,000,000.

Calif., San Francisco—SCHOOL—San Francisco City Unified School Dist., 135 Van Ness Ave., plans by Aleck L. Wilson, 325 Montgomery St., Zone 4, reconstr. Jefferson Elementary School, 19th Ave., $815,000. CD 11/9/56.

▲ **Conn., Bridgeport**—SCHOOL—Town, Town Hall, elementary school, South End, $1,000,000.

▲ **Conn., Norwich**—SCHOOLS—Town, Bd. Educ., City Hall, voted $2,100,000 bonds Dec. 1, Junior High School, Ox Hill Rd., $900,000; Chandler & Palmer, 14 Thayer Bldg., archts.; Occum Elementary School; Merchants Ave., Taftville, $400,000; Arthur E. Thomas, 28 Shetucket St., Norwich, archt. CD 11/16.

▲ **Conn., Stratford**—APARTMENTS—Town, Town Hall, plans by William F. Griffin, 850 Norman St., Bridgeport, 200-unit moderate rental garden-type apartments for elderly residents, "Wood End Homes Project", $1,300,000. CD 2/7/57.

▲ **Del., Dover**—POWER PLANT EXPANSION—City, City Hall, power plant expansion, $8,000,000. Kuljian Corp., 1200 N. Broad St., Phila., Pa., consult. engrs. CD 10/22/51.

▲† **D. C., Wash.**—POWER PLANT—Architect of the Capitol, U. S. Capitol, Capitol Power Plant addn., $6,500,000 ($3,250,000 appropriated).

▲† **D. C., Wash.**—DOMICILIARY—U. S. Eng., 1st and Douglas Sts. N.W., plans by Hayes, Seay, Mattern & Mattern, 1707 H St. N.W., 540-men domiciliary, Soldiers Home, $5,000,000. CD 4/11/50.

▲ **Fla., Punta Gorda**—SCHOOL—Charlotte Co., bond election Mar. 15, school, $1,825,000.

Ill., Shelbyville—SCHOOLS—City, City Hall voted bonds Nov. 21, high school and imprv. grammer school, $850,000. Berger, Kelley, Untied & Assocs., Champaign, archts. CD 11/9.

▲ **Ga., Cartersville**—HOSPITAL—Bartow Co. Hospital Auth., Courthouse, voted bonds Nov. 18, hospital, $1,400,000. Gregson & Assocs., Mortgage Guarantee Bldg., Atlanta, archts. CD 11/4.

Ga., Rockmart—HOUSING—Rockmart Housing Auth., P. O. Box 312, plans by Tomberlin & Sheetz, 1429 Peachtree St. N.E., Atlanta, 75 housing units, $700,000.

▲ **Ill., Chicago**—SCHOOLS—Bd. Educ., 228 N. LaSalle St., school, 45 St. and Michigan Ave., $1,250,000. CD 6/11/57; school, 84 St. and Kildaire Ave., $450,000; Gillespie School, 9301 S. State St., $600,000; school, Sheridan Rd. and Castlewood Ave., $600,000; school, Claremont and Robbins Aves., $500,000; Rogers School, 7345 N. Washtenaw Ave., $600,000; Philip Sheridan School, 9035 Escanaba Ave., $450,000; Doolittle School addn., 525 E. 35 St., $1,200,000; school, 67 and Green Sts., $1,000,000. Plans by Schmidt Garden & Erickson, 104 S. Michigan Ave., school, replace Healy School 3037 S. Wallace St., $1,200,000. Bids in 1960.

Ill., Waukegan—POLICE AND FIRE DPT.—City, City Hall, combination police and fire dpt. bldg., 121 Madion St., $750,000.

Iowa, Osceola—SCHOOL—Clarke Community School Dist., voted $600,000 bonds Nov. 12, high school, Williamson & Loebsack, RFD 9, Topeka, Kan., archts. CD 9/22.

Me., Orono—EDUCATION—State, Dpt. Educ., State House, Augusta, plans by Crowell, Lancaster, Higgins & Webster, 6 State St., Bangor, education bldg., University of Maine, $750,000. Constr. 1960. CD 10/15.

Mass., Amherst—MEN'S PHYSICAL EDUCATION—Commonwealth of Mass., Dpt. Educ., c/o Div. Bldg. Constr., 38 Chauncy St., Boston, plans by Morris W. Maloney, 220 Dwight St., Springfield, U-60-2 men's physical education bldg. for University of Massachusetts. Approx. $500,000.

▲ **Mass., Boston**—MENTAL HEALTH TRAINING RESEARCH CENTER—Commonwealth of Mass., Dpt. Mental Health, c/o Div. Bldg. Constr., 38 Chauncy St., preliminary plans by Desmond & Lord, 6 Beacon St., Proj. M-60-4 mental health training research center, Boston State Hospital, $2,000,000. Constr. 1960.

▲ **Minn., Minneapolis**—FOREIGN LANGUAGES, etc.—Regents of the University of Minnesota, 404 Administration Bldg., Zone 14, plans by Thorshov & Cerny, Inc., 400 Metropolitan Bldg., foreign languages, English and general purpose classroom bldg. on West Bank of Mississippi River, $2,008,800. CD 7/14.

▲ **Minn., St. Paul**—MARRIED STUDENTS' HOUSING—Regents of the University of Minnesota, 404 Administration Bldg., Minneapolis, Zone 14, plans by Magney, Setter, Leach, Lindstrom & Erickson, 250 Foshay Tower, Minneapolis, married students' housing, Commonwealth Terrace Area, $1,569,000. CD 11/22.

▲ **Minn., Virginia**—SCHOOLS—Bd. Educ., preliminary plans by Haarstick-Lundgren & Assocs., N-212 First National Bank Bldg., St. Paul, high school and conversion bldg. for Junior High School-Junior College, $3,100,000. CD 11/18.

▲ **N. J., Cliffside Park**—SCHOOL—Bd. Educ., Borough of Cliffside Park, defeated project and bonds Dec. 3, high school addn., etc., $1,300,000. Robert Cadier, 570 Gorge Rd., archt. CD 10/22.

▲ **N. J., Clinton**—HOUSING, etc.—State Dpt. Institutions & Agencies, State House, Trenton, 5 housing units and powerhouse, Clinton Reformatory, $1,675,000. CD 4/21/55.

N. J., Florham Park—SCHOOL—Bd. Educ., voted referendum on bonds and project Dec. 1, elementary school, $618,000. David Ludlow, Springfield Ave., Summit, archt. CD 11/30.

▲ **N. J., Jamesburg**—ADMINISTRATION, etc.—State Dpt. Institutions & Agencies, State House, Trenton, administration and cottages, Jamesburg Home for Boys, $1,380,000. CD 1/27/46.

▲ **N. J., Matawan**—SCHOOL—Bd. Educ., Matawan Twp., defeated referendum for bonds and project Dec. 1, Junior-Senior High School, $2,500,000. CD 11/27.

▲ **N. J., Mount Freedom**—SCHOOL—Bd. Educ., Randolph Twp., referendum on bonds and project Jan. 19, high school, Millbrook-Dover Rd., Randolph Twp., $2,100,000. Eppie & Seaman, 902 Broad St., Newark, archts. CD 7/25/58.

▲ **N. J., Newark**—HOUSING—Newark Housing Auth., plans by Fava & Saunders, 30 James St., Zone 2, 3 housing projects, N. J. 2-16, 2-17 and 2-18, for aged, $6,000,000. CD 5/5/58.

▲ **N. J., New Lisbon**—DORMITORIES—State Dpt. Institutions & Agencies, State House, Trenton, dormitories at Colony, Barnegat Rd., $2,440,000. CD 3/2/53.

N. J., North Haledon—SCHOOL—Bd. Educ. voted referendum on bonds and project Dec. 2, intermediate school, $774,000. Coffin & Coffin, 125 E. 46 St., New York, N. Y., archts. CD 9/15.

N. J., Paramus—DORMITORY—Bd. Freeholders Bergen Co., Court House, Hackensack, plans by Robert Cadier, 570 Gorge Rd., Cliffside Park, 2 story, 140-bed dormitory bldg., Bergen Pines Hospital, $750,000.

▲ **N. J., West Long Branch**—SCHOOL—Bd. Educ. Monmouth Regional High School Dist., Oceanport, high school (for Oceanport, West Long Branch, Sea Bright and Monmouth Beach), $2,200,000.

▲ **N. J., Woodbine**—DORMITORIES—State Dpt. Institutions & Agencies, State House, Trenton, 3 dormitories, Deitersch Ave., Woodbine Colony for Retarded Males addn., $1,400,000. CD 3/2/53.

▲ **N. Y., Amherst**—TOWN HALL—Town, Town Hall, constr. town hall, $1,000,000.

N. Y., Hastings-On-Hudson—SCHOOL—Union Free School Dist. 4, Farragut Ave., plans by Eggers & Higgins, 787 United Nations Plaza, New York, elementary school, $812,000. Constr. not before April 1960. CD 12/1.

N. C., Raleigh—ART MUSEUM—North Carolina State Museum of Art, 215 E. Morgan St., plans by Haskins & Rice, 301 Hillsboro St., art museum addn., $625,000. CD 9/26/50.

▲ **N. C., Raleigh**—ASSEMBLY—State of North Carolina, Capitol Bldg., plans by Edward D. Stone, 38 E. 65 St., New York, N. Y., and Holloway & Reeves, 724 St. Marys, Raleigh, Legislative Assembly, $4,500,000. CD 9/4/58.

▲ **O., Akron**—PARKING STRUCTURE—City, City Hall, 3-deck parking structure, W. Exchange and S. Main Sts., $1,250,000. (Site changed) CD 3/15/55.

▲ O., **Loveland** — SCHOOL — Loveland Exmpt. School Dist., Madeira Rd., $400,000 bond election Jan. 12, high school $1,250,000. James E. Allan, 3007 Clifton, Cincinnati, archt. CD 11/10.

▲ O., **Oxford**—ASSEMBLY HALL—State of Ohio, Oxford University, plans by Jas. Allan, 3007 Clifton Ave., Cincinnati, assembly hall at Miami University, $3,000,000. Constr. late 1960.

▲ O., **Shaker Heights**—SCHOOL, etc.—Shaker Heights Bd. Educ., 3115 Woodbury Rd., Cleveland, Zone 20, high school addn. Over $1,000,000; administration bldg., over $400,000.

O., **Tallmadge**—SCHOOL—Bd. Educ., Tallmadge, elementary school, $500,000.

▲ S. D., **Brookings**—CITY HALL—City, City Hall, plans by Ellerbe & Co., 333 Sibley St., St. Paul, Minn., city hall, $1,000,000.

▲ Tex., **Levelland** — SCHOOLS — Levelland Ind. School Dist., defeated bonds Nov. 14, high school $600,000, elementary school $450,000, classrooms $550,000. Brasher, Spencer & Goyette, 2118 34 St., Lubbock, archts. CD 11/6.

Va., **Lynchburg**—NURSES HOME—Lynchburg General Hospital, nurses home, $510,000. Bids after Jan. 1.

▲ Va., **Martinsville**—SCHOOL—City, School Bd., high school, $1,165,000.

Wash., **Liberty Lake**—SCHOOL—Consolidated School Dist. 362, plans by McClure & Adkison, Sherwood Bldg., Spokane, 37,000 sq. ft. Liberty High School, $650,000.

Wash., **Vancouver**—SCHOOL—Evergreen School Dist. 114, RFD 1, plans by D. E. Eby, 1105 Broadway, Orchards Junior High School, $621,500. CD 2/24.

▲ N. S., **Halifax**—HOSPITAL—Nova Scotia Dpt. P. Wks., Parliament Bldgs., plans by C. A. Fowler & Co., 28 South St., 350-bed Victoria General Hospital addn. $2,500,000.

▲ Ont., **Hamilton**—LIBRARY—Hamilton Public Library Bd., Main Branch, 55 Main St. W., Central Library addn. $1,870,000.

Ont., **Sault Ste. Marie**—PROVINCIAL OFFICE—Ontario Dpt. P. Wks., Queen's Park, Toronto, 3 story, rein.-con., brick provincial office, for health laboratory, Highways Dpt., district office, $750,000.

▲ Ont., **Welland**—SCHOOL—Crowland Twp. High School Bd., c/o Arthur B. Scott Assocs., archts., 65 Empire St., high school, $1,000,000.

Que., **L'Islet**—HOME FOR AGED—Provincial Dpt. Health, Parliament Bldgs., Quebec City, Home for Aged. $600,000.

Que., **Montreal**—SECONDARY SCHOOL—Montreal Catholic School Comn., 3737 Sherbrooke St. E., plans by Yves Belanger, 5959 Monkland Ave., 2 story, bsmnt., rein.-con., brick Secondary School and gymnasium, Desmarchais Blvd. $700,000. Lalone & Valois, 615 Belmont St., consult. engrs.

COMMERCIAL BUILDINGS

Ala., **Birmingham**—BOWLING ALLEY—Birmingham Realty Co., 2118 1 Ave. N., plans by Miller, Martin, Lewis & McCowan, Title Bldg., 24-lane brick bowling alley. $700,000. Bowlo-Mac, Inc., lessee.

Ala., **Birmingham**—DOCTORS CENTER—Doctors Center Corp., c/o Fritz Woehle, archt., 1909 Cahaba Rd. Zone 9, 7 story, doctors center, 18 St. 9th and 10th Aves. S. $500,000.

▲ Calif., **Antioch**—BOWLING CENTER—Delta Fair, Inc., c/o Design Assocs. Inc., archt., 2090 Willow Pass Rd., Concord, 1 story, 30,000 sq. ft. 32-lane bowling center, $1,000,000.

Calif., **Encino**—FELLOWSHIP HALL, etc.—Encino Community Church, 5315 Balboa St., plans by Welton Becket & Assoc., 5657 Wilshire Blvd., Los Angeles, 2 story fellowship hall, memorial court, parking lot, Ventura Freeway and Ventura Blvd., $550,000.

▲ Calif., **Felton**—MOTEL, etc.—Owner, c/o Leonard S. Mosias, archt., 1488 Howard St., San Francisco, 100-unit motel and commercial development, $1,250,000.

▲ Calif., **San Diego**—HOME FOR RETIRED—Pacific Homes Dev. Co., 5250 Santa Monica Blvd., Los Angeles, plans by Neptune & Thomas, 742 Colorado Blvd., Los Angeles, frame, masonry home for retired in Pacific Beach, $3,500,000.

Calif., **Van Nuys**—DWELLINGS—Ray C. Skinner & Co., 2405 Thompson St., Ventura, plans by Johnson, Engren & D'Agostino, 4868 Oak Park Ave., Encino, 78 dwellings, Terra Bella and Gladstone Sts., $750,000.

▲ Calif., **Walnut Creek** — DEPARTMENT STORE — The Emporium-Capwell Co., Market St., San Francisco, plans by Welton Becket & Assoc., 153 Maiden Lane, San Francisco, third floor department store addn. $1,600,000. Constr. 1960. CD 12/3.

▲ Colo., **Colorado Springs**—LIBRARY—Colorado College, plans by Skidmore, Owings & Merrill, 30 W. Monroe St., Chicago, Ill., library. $1,250,000.

▲ Conn., **Greenwich**—HOTEL, etc.—Jim Nash Assocs., apt. and consult engrs. 405 E. 54 St., New York, N. Y., hotel, restaurant and theatre, $3,500,000.

▲ Conn., **Middletown**—DORMITORIES, etc.—Wesleyan University, University Drive, dormitories and refectory. $4,000,000.

Conn., **Orange**—DEPARTMENT STORE—John Gaetano, 800 George St., New Haven, department store, Post Rd., $400,000.

▲ Conn., **Stamford**—HOUSES—Harry Bennett & Assocs., 770 High Ridge Rd., 100 houses, "Lake Wood Park," West Trail. $3,999,000.

(Continued on page 58)

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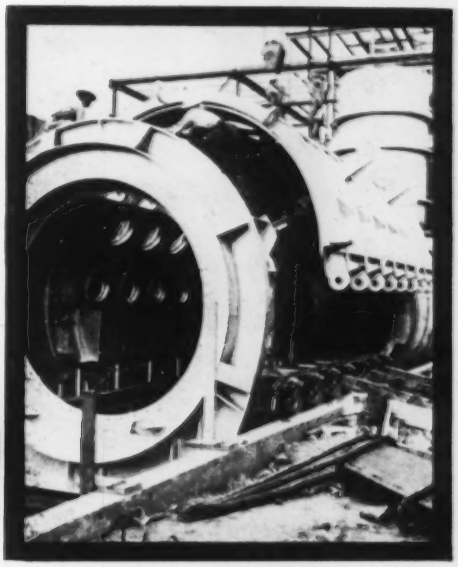

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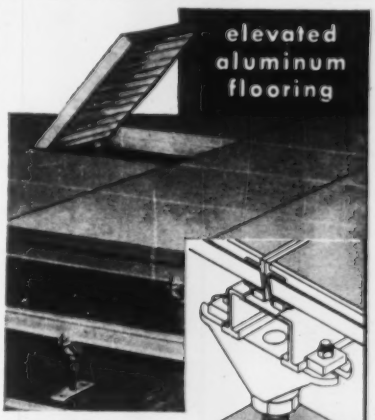

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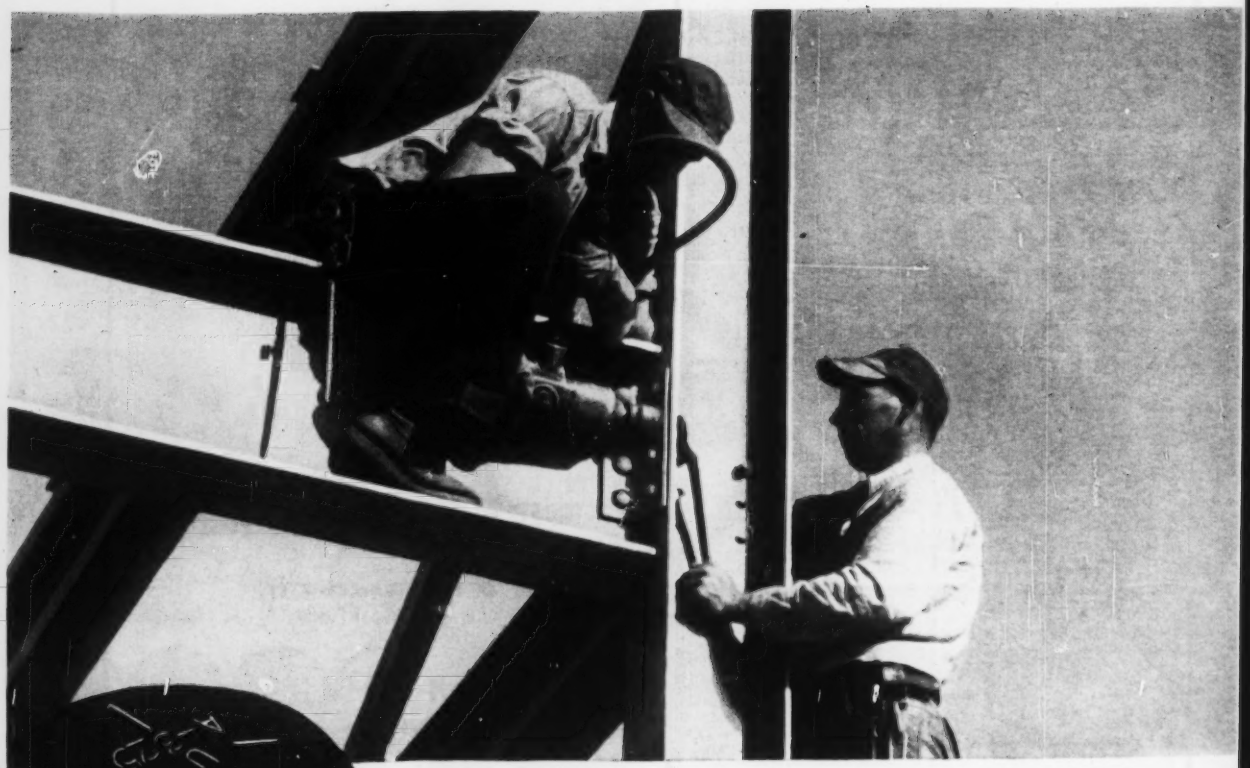

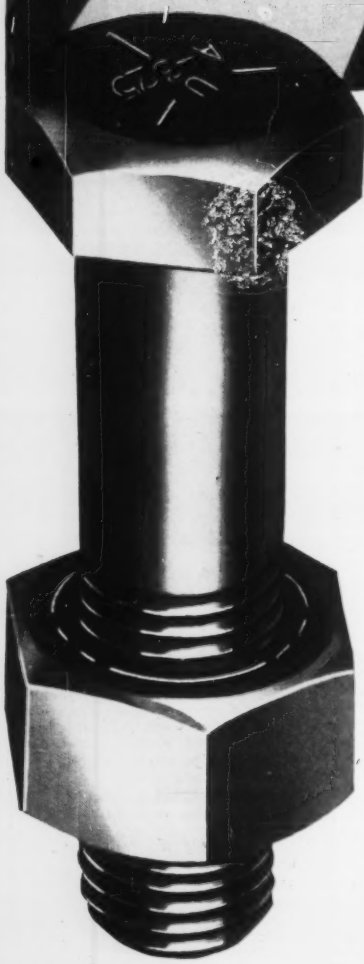

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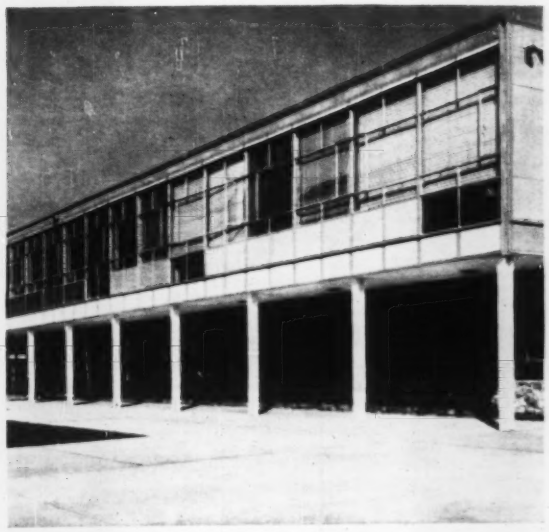

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(Continued from page 55)

▲ **Conn., West Hartford**—STORE—Sears, Roebuck & Co., 80 State St., Hartford, 2 story, 160,000 sq. ft. retail store, Corbin's Corner. **$1,600,000.**

▲ **Fla., Fort Lauderdale**—RESIDENCES—Herbert Kravitz & Rube Kaplan, P.O. Box 12038, 1,800 residences, **$18,000,000.** James W. McLaughlin, 400 N.W. 3 Ave., consult. engr.

Fla., Pompano Beach—APARTMENT—Tangelo Co., c/o J. B. O'Neill, archt., 60 "D" Coral Shopping Center, Fort Lauderdale, apartment, **$500,000.**

Fla., Tampa—MOTEL—Lyncrist Corp., c/o C. E. Charbonneau, archt., 606 Mandalay Ave., Clearwater Beach, 77 unit motel and restaurant adjacent to Tampa International Airport, Westshore Blvd. and Spruce St., **$750,000.**

▲ **Ga., Hapeville** — APARTMENT — Carlton & Spivey, Inc., 508 Bona Allen Bldg., Atlanta, apartment. **$1,000,000.**

Ga., Macon—SHOPPING CENTER—Hillcrest-Pio Nono Shopping Center, c/o Hall & Ferguson, archts., 833 Walnut St., shopping center, **$500,000.**

▲ **Ill., Elk Grove**—CLUB—Centex Constr. Co., Marshall St., Dallas, Tex., plans by A. J. Del-Bianco, 5501 W. Irving Park Rd., Chicago, club, motel, swimming pool, Busse and Landmeier Rd. **$3,000,000.** Bids in Spring.

▲ **Ind., Fort Wayne**—HOSPITAL—Poor Handmaids of Jesus Christ, St. Joseph Hospital, 730 W. Berry, hospital addn., **$4,000,000.**

▲ **Iowa, Decorah**—STUDENT CENTER—Luther College, Decorah, student center, Proj. No. Iowa 13-CH-28 (5). **$1,000,000.**

▲ **Ky., Owensboro**—POST OFFICE—U. S. Post Office Dpt., P. O. Box 1999, Cincinnati, O., post office (lease-build), **$1,000,000.** Bids early 1960.

▲ **Mass., Rowley**—RESIDENTIAL DEVELOPMENT, etc.—Owner, c/o Harold M. Turiello, archt., 1025 Revere Beach Parkway, Revere, residential development and shopping center, off Rte. 1A and Cross St. Approx. **$1,000,000.**

▲ **Mich., Temperance**—HOMES—Fred Flatt, 1167 Ashland Dr., 182 homes, Lewiston Estates, off Lewis Ave. north of Stearns Rd. **$2,000,000.** Constr. 1960.

▲ **Minn., St. Paul**—HOSPITAL—Midway Hospital, 1700 University Ave., plans by Ellerbe & Co., 333 Sibley St., 6 story, 75-bed hospital addn. **$1,000,000.**

▲ **Miss., Tupelo** — HOSPITAL — Mississippi Community Hospital, 4 story hospital addn., and 150-car parking **$1,663,000.** Bids early in 1960.

▲ **N. J., Elizabeth**—HOSPITAL—Bd. Trustees, Elizabeth General Hospital, 925 E. Jersey St., plans by Joseph Allan, Jr., 412 Morris Ave., hospital addn., **$1,500,000.** To go ahead in March.

▲ **N. J., Hazlet**—HOUSES—Raritan Assocs., c/o Daniel Lieblich, 152 Market St., Paterson, 550 houses, Bethany Rd. and Garden State Parkway. **$8,000,000.**

▲ **N. J., Livingston** — CLASSROOM BLDGS. — Newark Academy, 215 1st Ave., Newark, plans by Eggers & Higgins, 100 E. 42 St., New York, N. Y., classroom bldgs., South Orange Ave., **$2,250,000.**

▲ **N. J., Riverside**—HOSPITAL—Jurbrugg Memorial Hospital, Bd. Trustees, Taylor St., plans by George Von Uffel, 30 Warwick Rd., Haddonfield, hospital addn. **$1,000,000.**

▲ **O., Akron**—OFFICE, etc.—Akron Civic Improvement Co., 1500 Superior Ave., Cleveland, Zone 14, plans by Derr & Stueber, 42 Frank St., 7 story office, $7,000,000; 150-unit motel, $1,500,000; 1,100-car underground garage, $1,000,000; bowling alley, shops, $600,000. CD 4/16.

▲ **O., Columbus**—HOUSING FOR AGED—First Community Church, 1320 Cambridge Blvd., 456 unit housing project for aged. **$5,000,000.**

▲ **O., Mentor**—HOMES—Stanley Bach, 2201 Cedarview Dr., Cleveland, Zone 21, 200 homes in Pinehurst Forest Ave. section, **$3,100,000.** Constr. Spring 1960.

O., Toledo—HOME FOR AGED—Jewish Home for Aged, 2233 Collingwood Ave., 1 story, 45-bed Home for Aged, 11-acre site, Kenwood Blvd. **$500,000.** Constr. in June 1960.

▲ **O., Toledo**—OFFICE—Ohio Fuel Gas Co., 231 Huron St., plans by Bellman, Gillett & Richards, 1600 Madison Ave., 1 story office, Jefferson Ave. and Erie St. **$1,280,000.**

▲ **O., Youngstown**—APARTMENT—Co-Operative Project, c/o D. D. Davis Constr. Co., 1155 Meadowbrook, 15 story apartment, Fifth Ave. and Broadway. **$2,250,000.**

▲ **Pa., Ambler** — RESIDENTIAL DEVELOPMENT — Owner, c/o Michael G. Garber, 218 E. Airy St., Norristown, residential development, 40 acre tract, Narcissa Rd., Plymouth Twp. **$2,000,000.**

▲ **Pa., Harrisburg**—APARTMENT—H. C. Wolbert, Inc., 1222 Mulberry St., two 16 story apartments, Latshmere Manor, Susquehanna Twp. **$6,000,000.**

▲ **Tenn., Chattanooga**—BANK, The Pioneer Bank, 715 Broad St., plans by Bianculli & Palm, Val Bldg., bank and office, Broad and W. 8 Sts., **$1,500,000.**

▲ **Tenn., Nashville**—DORMITORIES—Vanderbilt University, plans by Brush, Hutchinson & Gwinn, 1717 W. End. Ave., women's dormitories with dining facilities. **$3,000,000.**

Tex., Amarillo—DWELLINGS—Jennings & Lewis Builders, 3620 Western St., forty-six brick veneer, concrete slab dwellings. **$760,000.**

Tex., Beaumont—SCHOOL—Diocese of Galveston, 1411 Sealy St., Galveston, plans by Steinman & Steinman, 1st Federal Bldg., steel frame, brick co-educational Catholic high school. **$600,000.** Dickson, Dickson & Assocs., P. O. Box 42886, engrs. CD 11/5/58.

▲ **Tex., Cuero**—HOME FOR AGED—"Friendship Village," c/o Southwest Texas Conference of the Methodist Church, 900 W. Shoreline, Corpus Christi, plans by Archie Young & Assocs., 403 N. Main St., Victoria, Home for Aged. **$1,100,000.** Lockwood, Andrews & Newman, 1010 Waugh St., Houston, consult. engrs. CD 9/8/58.

▲ **Tex., Dallas**—APARTMENT—W. D. Felder, Jr., 3402 Cedar Springs Rd., apartment, Turtle Creek and Cedar Springs Rd. **$1,250,000.**

▲ **Tex., Galveston**—APARTMENTS—H. W. Locher, c/o Locher Constr. Co., 2427 North Blvd., Houston, plans by Anthony Luciano & Assocs., 600 McGowen St., Houston, Phase 1, 10 story, 100-unit aluminum, brick, rein.-con., air-conditioned apartment, to be called "Isle De Ville Apartments," 4th and Mechanic Sts., **$1,750,000;** Phase 2, addnl. 6 floors, 36-unit apartment, 4th and Mechanic Sts., **$500,000.**

Tex., Harlingen—HOTEL—George H. Beck, 318 N. 3rd St., plans by Edward J. Romieniec Assocs., 307 E. Jackson St., Phase 1, rein.-con., structural steel 94 room Seville Hotel, swimming pool, **$600,000;** Phase 2, 80 room hotel unit, **$400,000,** western section of Harlingen.

▲ **Tex., Houston**—HOTEL, etc.—Cullen Center, Inc., First City National Bank, hotel, 3 office bldgs., parking garage, **$100,000,000.** Welton Becket & Assocs., 5647 Wilshire Blvd., Los Angeles 36, Calif., consult. engrs.

Tex., Houston—APARTMENT—South Texas Bldg. Co., 3330 Reveille St., 4 story, brick, 110-unit apartment, **$500,000.**

▲ **Tex., Odessa**—BANK, etc.—First National Bank and Vaught Bldg. Corp., c/o George L. Dahl, archt.-engr., 2101 N. St. Paul St., Dallas, 10 story, 206,000 sq. ft. bank and office. **$3,000,000.**

Tex., San Angelo—EDUCATIONAL—First Methodist Church plans by Wilson, Patterson, Sowden & Dunlap & Epperly, 602 Bailey, Fort Worth, 3 story, masonry, concrete, steel, air-conditioned educational bldg., **$600,000.** Yandell, Cowan & Love, Fort Worth, consult. engrs.

▲ **Tex., San Antonio**—SHOPPING CENTER—E. J. Burke & Sons, 1100 Goliad Rd., shopping center, Highland Hills Area, **$2,000,000.**

▲ **Utah, Layton**—SHOPPING CENTER—Petroleum Marketing Properties, 345 S. State, Salt Lake City, plans by Snedaker, Budd and Monroe & Assocs., 10 Post Office Pl., Salt Lake City, shopping center. **$4,000,000.**

▲ **Utah, Salt Lake City**—BOWLING ALLEY—Rancho Lanes, Inc., 640 W. N. Temple, plans by M. Keith Richardson, 603 Dooly Bldg., bowling alley, to incl. 40x100 ft. swimming pool, etc., N. Temple between 5th and 6th W. **$1,250,000.**

▲ **Utah, Salt Lake City**—SHOPPING CENTER—Skaggs Properties, Inc., c/o M. E. Harris, Jr., archt., 967 E. 9th S., 30,000 sq. ft. shopping center, 12 acre site, 33th S. and Wasatch Blvd. **$2,000,000.**

Vt., Burlington—SHOPPING CENTER—Thomas Farrell, South Burlington, plans by Eugene Alexander, Charlotte, 60,000 sq. ft. shopping center. **$500,000.**

▲ **Alta., St. Paul**—HOSPITAL—St. Theresa Hospital, plans by Diamond, Clarke & Assocs., 11536 Jasper Ave., Edmonton, hospital, **$1,000,000.**

▲ **Alta., Swan Hills**—SHOPPING CENTRE—Consul Ventures Ltd., c/o Eugene Oleksyn, archts., 10534-109 St., Edmonton, shopping centre extension, incl. 30-room hotel, 140 mi. NW of Edmonton. **$1,200,000.**

B. C., New Westminster—Y.M.C.A.-Y.W.C.A.—Royal City Young Mens Christian Assn., c/o Carberg, Jackson & Assocs., archts., 17-774 Columbia, Y.M.C.A.-Y.W.C.A., 6th and Queens St. **$650,000.**

B. C., Victoria—OLD PEOPLE'S HOME—The Salvation Army, 757 Pandora St., plans by Wade, Stockdill, Armour & Partners, 1020 Government St., 2 story, 140-bed old people's home, Mount Adelaide suburb. **$725,000.** Bids in April.

Man., St. James—HOTEL—Crossroads Development Ltd., c/o Roy M. Lee, archt., 399 Graham Ave., Winnipeg, 2 story, 64 unit hotel. **$650,000.**

Ont., Sturgeon Falls—HOME FOR AGED—Home for Aged Committee, General Delivery, plans by Critchley & Delean, 159 Main St. E., North Bay, 100-bed home for aged, Michaud St. **$575,000.**

Ont., Toronto—HOTEL—Max Sharp & Son, Constr., 2515 Bathurst St., plans by Peter Dickinson & Assocs., 1910 Yonge St., 3 story, bsmt., 125 room hotel, **$500,000.** Alex Tóblas & Assocs., Ltd., 194 Wilson Ave., consult. engrs.

▲ **Que., Quebec City**—HOTEL—Gerard Thibault, c/o A. la Port St. Jean, 1063 St. Jean St., hotel, 2 story underground parking facilities, 1034 St. Jean St., **$1,000,000.**

INDUSTRIAL BUILDINGS

▲ **Calif., Los Angeles**—SHOP—Columbia Broadcasting System, 7800 Beverly Blvd., plans by Chas. Luckman & Assoc., 9220 Sunset Blvd., 125x308 ft. rein.-con. shop addn. **$1,170,000.**

▲ **Calif., Mountain View**—PLANT—Fairchild Semiconductor Corp., 844 Charleston Rd., Palo Alto, 88,000 sq. ft. silicon transister plant addn. **$1,500,000.**

▲ **Calif., Richmond**—RESEARCH CENTER—Stauffer Chemical Co., 1415 South 47th St., rein.-con. research center. **$1,600,000.** CD 12/2/54.

▲ **Conn., Newington** — PLANT — Fafnir Bearing Co., Willard Ave., 220,000 sq. ft. mfg. plant addn. **$2,200,000.**

▲ **Ill., Dixon**—CEMENT PLANT—The Medus Portland Cement Co., Midland Bldg., Cleveland, O., 1,000,000 bbl. per year, cement plant addn. CD 4/25/55.

Ill., Elk Grove—FACTORY—Dupli-Color Products Co., Inc., 2440 S. Michigan Ave., Chicago, plans by A. Epstein & Sons, Inc., 2011 Pershing Rd., Chicago, 56,000 sq. ft. factory. **$850,000.** Bids in 1960.

▲ **Ill., Elk Grove**—PLANT—Louis Milani Foods, Inc., 4261 W. 40th St., Chicago, plans by A. Epstein & Sons, Inc., 2011 Pershing Rd., Chicago, 100,000 sq. ft. food mfg. plant, **$1,500,000.** Bids 1960.

▲ **Ill., Elmhurst**—PRINTING PLANT—R. H. Donnelley Corp., Prudential Plaza, Chicago, Zone 1, 170,000 sq. ft. printing plant, Oak Brook. **$2,000,000.** Bids in 1960.

Ill., Joliet—TERMINAL—Freeport Sulphur Co., 161 E. 42nd St., New York 17, N. Y., terminal (marine) dock and tank farm, Des Plaines River, **$700,000.**

▲ **Ill., Northlake**—BAKERY FACTORY—Burny Bros. Bakeries, Inc., 4600 W. Chicago Ave., Chicago, 145,000 sq. ft. bakery factory North Ave. and Lake St. **$3,000,000.** Bids in 1960.

▲ **Ind., Gary**—AUTO BODY PLANT—Budd Co., 2450 Hunting Park Ave., Phila., Pa., auto body plant addn., 700 Chase Ave. **$5,500,000.**

▲ **Neb., Omaha**—FACTORY—Fruehauf Trailer Co., 7425 Dodge St., Omaha, factory, 120th and F St. **$3,500,000.**

N. J., Newark—PLANT—Verona Pharma-Chemical Corp., Springfield Rd., Union, plans by Engineers Co., Inc., 487 Orange St., processing color film plant, **$500,000.** Agfa, Inc., 516 W. 34 St., New York, N. Y., lessee.

N. C., Aberdeen—WAREHOUSE—Amerotron, Inc., Aberdeen, warehouse. **$500,000.** Bids in January.

▲ **O., Canton**—TUBE PIERCING MILL—Timken Roller Bearing Co., 1835 Dueber Ave. S.W., tube piercing mill. **$4,500,000.** Constr. 1960.

▲ **O., Hudson**—WAREHOUSE—Euclid Division, General Motors Corp., Hudson, plans by Argonaut Realty Div., General Motors Corp., Argonaut Bldg., Detroit, Mich., 335,000 sq. ft. warehouse. **$3,000,000.** Bids in February or March. CD 9/11.

▲ **Pa., Auburn**—PLANT—Frito Co., Exchange Bank Bldg., Dallas, Tex., plant for production of corn chips, etc. **$3,000,000.**

Tenn., Gleason—PLANT—W. G. Bush & Co., 174 Third Ave. N., Nashville, brick mfg. plant. **$500,000.**

▲ **N. S., Sydney**—SINTERING PLANT—Dominion Coal Co. Ltd., International Pier, Sydney, sintering plant, coal washing and cleaning plant. **$6,000,000.**

UNCLASSIFIED

† **Alaska, Boswell Bay**—COMMUNICATION FACILITIES—U. S. Eng., P. O. Box 7002, Anchorage, communication facilities. Over **$500,000.** Bids in March.

▲† **Alaska, Duncan Canal**—COMMUNICATION FACILITIES—U. S. Eng., P. O. Box 7002, Anchorage, communication facilities. Over **$1,000,000.** Bids in March.

▲† **Alaska, Hoonah**—COMMUNICATION FACILITIES—U. S. Eng., P. O. Box 7002, Anchorage, communication facilities. Over **$1,000,000.** Bids in March.

▲† **Alaska, Smugglers Cove**—COMMUNICATION FACILITIES—U. S. Eng., P. O. Box 7002, Anchorage, communication facilities. Over **$1,000,000.** Bids in March.

▲† **Alaska, Yakataga**—COMMUNICATION FACILITIES—U. S. Eng., P. O. Box 7002, Anchorage, communication facilities. Over **$2,000,000.** Bids in March.

▲ **Calif., Long Beach**—GRAIN FACILITY, etc.—Bd. Port Comrs., 1333 Embarcadero, P. O. Box 570, Zone 1, grain facility with 24 story work house and control bldg., Pier A, Berths 208-211, 7,000 ft. railroad, 320,000 sq. ft. paved area. **$4,000,000.** Koppel Bulk Terminals, lessee. Marshall, Barr & Assocs., Lloyd Bldg., Seattle, Wash., engrs. Constr. 1960. CD 2/5/58.

▲ **Calif., Long Beach**—PASSENGER-CARGO TERMINAL—Bd. Harbor Comrs., 1333 Embarcadero, Box 570, Zone 1, plans by Kistner, Wright & Wright, 1125 W. 6th St., Los Angeles, passenger-cargo terminal. **$2,000,000.** Moffatt & Nichol, 122 W. 5th St., engrs. S. B. Barnes & Assoc., 2236 Beverly, Los Angeles, structural engrs. CD 2/5/58.

▲ **Colo., Littleton**—PARK and RECREATIONAL AREA—Arapahoe Co., Courthouse, defeated **$1,000,000** bonds Dec. 1, park and recreational area, 268 acres, S. R. DeBoer, 515 Ellis, Denver, landscape archt. CD 11/11.

▲ **Ga., Atlanta**—STADIUM—Major Sports, Inc., 98 Forsyth St. N.W., plans by Finch, Alexander, Barnes, Rothschild & Paschal, 70 Fairlie St. N.W., athletic stadium. **$15,000,000.**

Ill., East St. Louis—SUBWAY—City, City Hall, and Bd. Supervs. St. Clair Co., Court House, Belleville, subway to carry 25 St. under L. & N. R.R. tracks south of Jones Park. **$750,000.** (Correction—owner). CD 12/3.

Louisiana—GAS SUPPLY LINES—Texas Gas Transmission Corp., Bank of Southwest Bldg., Houston, Tex., and Owensboro, Ky., 93 mi. gas supply lines in Cameron areas and off-shore areas. **$875,000.**

▲ **Pa., Harrisburg**—LIVESTOCK and STORAGE BLDG.—Dpt. Agriculture, South Office Bldg., livestock bldg., **$2,000,000;** storage, **$235,000;** Pennsylvania Farm Show. CD 3/18/58.

† **Wash., Seattle**—CLASSIFIED FACILITIES—U. S. Eng., 1519 S. Alaskan Way, Zone 4, classified facilities in Seattle defense area. Over **$500,000.** Bids in February.

Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
January 5 Massachusetts
STREETS AND ROADS
December 29 Massachusetts

BUILDINGS—LB & CA

▲ **S. Volpe & Co., Inc.**, 185 Devonshire St., Boston, Mass., LB Approx $10,000,000, MUNICIPAL AUDITORIUM, BOSTON, MASS. City, City Hall, Boston, Mass. Bids Dec. 16. CD 10/27.

▲ **Vara Constr., Inc.**, 718 Huntington Ave., Boston, Mass., LB $1,768,000, HIGH SCHOOL, Winn St., BURLINGTON, MASS. Town, Supt. Schools, Burlington, Mass. Bids Dec. 15. CD 11/18.

▲ **Carroll Verge & Whipple, Inc.**, 370 Wahconah St., Pittsfield, Mass., CA $1,129,924, combined project two sites, HOUSING FOR THE ELDERLY Proj. 174 Mohegan St., Proj. J-667-1, Wahconah St. and Francis Ave., PITTSFIELD, MASS. City Housing Auth., Pittsfield, Mass. Bids Nov. 27. CD 12/8, under LB.

▲ **Green Manor Estates, Inc.**, 681 Parker St., Manchester, Conn., Owner Builds, $3,250,000, 325 HOUSES, Green Manorville Third Section, Taylor Rd., Scitico, ENFIELD, CONN.

▲† **Dist. P. Wks., Third Naval Dist.**, 90 Church St., New York, N. Y., rejected bids Mar. 31, 500 unit Capehart HOUSING (1st Increment) Submarine Base, NEW LONDON, CONN. (Correction—status). CD 4/17, under CA.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
STREETS AND ROADS
January 5 New Jersey

▲‡ **Md., Andrews Air Force Base**—OPERATIONS, BASE and TERMINAL, etc.—BA 1/7—U. S. Eng., First and Douglas Sts. N.W., Wash. 25, D. C., operations, base and terminal air freight passenger bldgs., ENG-49-080-60-30-(34). $1,000,000-$5,000,000. Walton & Maddon, 3510 Rhode Island Ave., Mt. Ranier, archts. CD 12/9.

▲† **Guam** — AIRPORT IMPRVS. — BA 1/14 — Bureau Yards & Docks, Dpt. Navy, Pacific Div., Agana, Guam, runway extension, runway lighting, taxiways and aprons, Naval Air Station. $5,000,000. Extended date. CD 11/30.

▲ **New York and New Jersey**—BA 1/19—Port of New York Authority, Rm. 1100, 111 Eighth Ave., New York, Zone 11, Section No. 6 of approach roadway sys. in New York City for lower level expansion of George Washington Bridge. Contr. GWB-190.007. Plans deposit $50. CD 8/15/57.

HEAVY CONSTRUCTION—LB & CA

▲ **NEW YORK**—State Dpt. P. Wks., State Office Bldg., Albany.

N. Y.—**Les Strong Constr. Co.**, Whitney Point, N. Y., CA $616,677, b. conc. 1.38 mi.; misc. work 0.11 mi.; prestressed concrete bridge 72 ft. span, twin rein.-con. box bridge 53.3 sp. Andover Village SH 5512, Rtes. 17&22, FARC 59-111. Proj. F-589(7). Allegany Co.

N. Y.—**Alexander Constr. Corp.**, Downsville, N. Y., CA $603,599, b. conc. 4.1 mi.; misc. work 0.06 mi.; rehabilitation of exit, 1-beam bridge, Norwich-South New Berlin, Pt. 1, SH 596, Norwich-South New Berlin Pt. 2 & South New Berlin-New Berlin, Pt. 1, SH 1394 Rte. 23, FARC 59-106 RC 59-107, Proj. F-620 (10), Chenango Co.;

N. Y.—**Johnson Drake & Piper, Inc.**, 86 Trinity Pl., New York 6, N. Y., CA $3,046,273, b. conc. Type 2A, 0.9 mi., two-37 ft. var. wide, 1.38 mi., 2 hy. seps. comp. I-beams 160.5 ft. & 160.5 ft., 2 ped. overpasses comp. I-beams 124.5 ft. & 129 ft., 1 br. rein.-con. twin box 29.3 ft. Lake Shore-Lackawanna City, SH 5019 Rte. 5 FARC 59-89, Proj. U-750 (15), Erie Co.;

N. Y.—**Gilbane Bldg. Co.**, 90 Caverly St., Providence, R. I., CA $4,065,620, b. conc. pavement Type 1A, 5.03 mi.; misc. work 0.04 mi., 2 hy. seps. comp. I-beams 166.5 ft. and 167.5 ft., 1 RR sep. comp. I-beam twin 2 sp. 160 ft. each, 1 br. deck girder cant. type twin 5 sp. 710 ft. each Massena-Helena Pt. 1, SH 1261, Raquette River, Hogansburg Pt. 1, SH 1861 & Raquette River, Hogansburg Pt. 2, St. Regis Indian Reservation Fort Covington, Pt. 1, SH 8396, Rte. 37, FARC 59-100, Proj. F-580(15), Franklin and St. Lawrence Counties;

N. Y.—**C. P. Ward, Inc.**, 700 Hallenbeck St., Rochester 21, N. Y., CA $1,497,646, b. conc. 1.53 mi., Batavia City, Main St. Arterial Hy. (Summit St. to East City Line) Batavia-Stafford, Pt. 3, SH 5145A, Rtes. 5 & 33, FAC 59-15, FARC 59-134, Proj. U 706(4) F-335(4), Genesee Co.;

N. Y.—**B. William Delia**, Sacandaga Park, Northville, N. Y., CA $1,287,052, 9 in. c. conc. pavt., 2.46 mi., b. conc. pavt. 1.36 mi., twin bridge comp. I-beams each 167.5 ft., 2 sp. Cairo-Windham, Pt. 1, SH 5233 Cooksburg-Cairo, Pt. 3, SH 8413, Cairo-Greenville, SH 8309, Cairo Hamlet, SH 954, South Cairo-Cairo, SH 887 and Saxton-Cairo, SH 9301, Rtes. 23, 145 & 32, FARC 59-128, Proj. F-1159(1) F-567(4), Greene Co.;

N. Y.—**The Lane Constr. Corp.**, 900 E. Main St., Meriden, Conn., CA $2,888,074, b. conc. pavt. Type 1A main line 4.6 mi. acc. 5.37 mi. asphalt concrete Type 1A pavt. 0.44 mi. gr. grav. B.D.S.T. pavt. 3 sy seps. comp. W.F. beams 6 sp. 441 ft., 4 sp. 325 ft. and 5 sp. 297.5 ft., 2 brs. rein.-con. boxes 20 ft. and 21 ft. Interstate Rte. 505 Section 7AB-1 (Jefferson Co. Line to SH 184) Int. Tour Rte. 81 FISH 59-19, Proj. I-81-3(10) 130, Jefferson Co.; CA $6,522,959, 9 in. c. conc. 7.47 mi., 4.58 access. 6 hy. seps. comp. beams, 6 sp. 343.3 ft., 3 sp. 127.8 ft., 3 sp. 136.3 ft., 3 sp. 130.1 ft., 3 sp. 126.1 ft. & 5 sp. 259.3 ft., 3 RR seps. comp. beams 3 sp. 148.5 ft., 3 sp. 148.5 ft. and 3 sp. 141 ft. Int. Rte. 502 (Clifton Park to Malta) incl. access work SH 5519 and various town and county roads, Rte. 87, FISH 59-18, Proj. I-IG-87-3(20)169, Saratoga Co.;

N. Y.—**Peter Kiewit Sons, Inc.**, Box 224, Eastwood Station, Syracuse 6, N. Y., CA $5,222,047, b. conc. Type 1 10.35 mi., b. conc. pavt. Type 1A 1.27 mi., bit. mac. type 1 0.14 mi., misc. work 9 hy. seps. comp. I-beams 121.5 ft., 120.3 ft., 298.5 ft., 253 ft., 131.3 ft., 129.7 ft., 293.8 ft., 1 RR sep. I-beam 251.9 ft., 2 brs. comp. I-beams 210 ft. and 210 ft., br. rein.-con. twin box 41 ft. Int. Rte. 504 (parish to Jefferson County Line) Pt. 2 and Pulaski-Williamstown, Pt. 1, SH 1288 (access reconstr.) Rte. 81 FISH 59-22, Proj. I-IG 81-2(26-119), Oswego Co.;

N. Y.—**Bero Constr. Corp.**, P.O. Box 70, W. River Rd., Waterloo, N. Y., CA $578,492, b. conc. minor repairs of 3 bridges 4 mi. Middlesex-Rushville SH 1772, Rte. 245 FARC 59-132, Proj. S-114(2), Yates Co. Grand total $26,328,439. Bids Oct. 15. CD 10/16, under LB.

▲ **NEW YORK**—State Dpt. P. Wks., State Office Bldg., Albany.

Peter Kiewit Sons, 1604 New Court State Rd., Syracuse, N. Y., CA $1,396,859, b. conc. 8.49 mi. widen. and repair existing 12 span I-beam bridge 719.9 ft., Starkey-Dresden Pt. 2, SH 8353 Rte. 14 RC 59-114, Yates Co. Bids Nov. 19. CD 11/25, under LB.

▲ **Coleman Bros. Corp.**, Readville, Mass., CA $1,969,403, 2,000 ft. viaduct section, Niagara Parkway, Niagara Co., Contr. NP-16, NEW YORK Power Authority of State of New York, The Coliseum Tower, 10 Columbus Circle, New York 19, N. Y. Bids Nov. 24. CD 11/29, under LB.

▲ **J. Rich Steers**, 17 Battery Pl., New York, N. Y., and **Frederick Snare Corp.**, 233 Broadway, New York, N. Y., LB $16,527,975 (10 bidders) Brooklyn and Staten Island Tower Piers, Narrows Bridge, Contracts NB-1B and NB-1S: LB $9,846,000, Brooklyn Tower Pier Contr. NB-1B; LB $7,096,000 Staten Island Tower Pier, Contr. NB-1S, NEW YORK, Triborough Bridge & Tunnel Auth., Administration Bldg., Randall's Island, New York 35, N. Y. Bids Dec. 16. CD 12/3.

▲ **Driscoll Constr. Co., Inc.**, 1121 Frankford Ave., Phila. 25, Pa., CA $1,854,750, Bid 2408, sewers and relay water mains Oregon Ave. from Bulkhead Line at Delaware River to Front St., etc., PHILA. PA. Dpt. Procurement, City Hall Annex, Phila., Pa. Bids Dec. 8. CD 10/19.

▲† **Security Constr. Co.**, 8903 Allendale Rd., Richmond, Va., LB $1,941,500, (7 bidders), aircraft maintenance facilities NAS and NASVR hangar bldgs., John Towers Field, ANDREWS AIR FORCE BASE, MD. U. S. Eng., First and Douglas Sts. N.W., Wash. 25, D. C. CD 12/11, under LB.

BUILDINGS—LB & CA

▲ **Marcello Mezzullo Inc.**, 132 Pearl St., Port Chester, N. Y., CA Est. $1,300,000, 1 story St. Christopher's R. C. CHURCH, Gale Ave. and Merrick Rd., BALDWIN, N. Y. Diocese of Rockville Centre, 253 Sunrise Highway, Rockville Centre, N. Y., William J. Boegel, 12 E. 48th St., New York 17, N. Y., archt.

▲ **Frank Droesch, Inc.**, 110-18 Jamaica Ave., Richmond Hill, N. Y., CA Est. $2,250,000, 5 story HOME FOR THE AGED alterations, 1 Prospect Park West, BROOKLYN, N. Y. Roman Catholic Diocese of Brooklyn, 75 Greene Ave., Brooklyn 5, N. Y. Bids Sept. 17. CD 8/26.

▲ **Wilputte Coke Oven, Div. Allied Chemical Co.**, 40 Rector St., New York, N. Y., CA Total est. $7,500,000, 76 COKE OVENS, Lackawanna Plant, LACKAWANNA, N. Y. Bethlehem Steel Corp., Bethlehem, Pa. CD 12/17.

▲ **Gotham Constr. Corp.**, 501 Fifth Ave., New York 17, N. Y., CA Est. $1,700,000, two 14 story Tower Gardens APARTMENTS, east side Bruckner Blvd. between Ward and Stratford Aves., NEW YORK, N. Y. Chester M. Goldman & Co., Inc., 277 Park Ave., New York 17, N. Y. CD 9/21.

▲ **Damon G. Douglas Co.**, 605 Broad St., Newark, N. J., CA Est. $1,500,000, design and constr. 2 story, 159,000 sq. ft. FOOD DISTRIBUTION CENTER, 31-acre tract, Erie and D.L.&W. R.R. lines and Garden State Parkway, CLIFTON, N. J. General Foods Corp., North St., White Plains, N. Y. Bids Nov. 16. CD 11/2.

▲ **Halpern & Landau**, c/o Jacobson, Goldfarb & Tanzman Co., 290 Hobart St., Perth Amboy, N. J., Owner Builds, $1,000,000, 41 HOUSES, Mobile Ave., WOODBRIDGE, N. J.

▲ **Navarro Corp.**, 6219 Broad St., Pittsburgh 6, Pa., CA $2,334,000, SENIOR HIGH SCHOOL, McKEESPORT, PA. McKeesport School Dist., Shaw Ave., McKeesport, Pa. Bid Nov. 4. CD 11/18, under LB.

▲ **J. P. Pickard**, Newtown Square, Pa., Separate Contracts, $1,675,000, RESIDENTIAL DEVELOPMENT, Monument Rd., etc., WILLISTOWN, PA.

▲ **The Austin Co.**, Roselle, Md., CA $2,700,000 steel frame, masonry WAREHOUSE, 1900 Washington Blvd., BALTIMORE, MD. Montgomery Ward Co., Washington Blvd. and Monroe St., Baltimore, Md. Edw. C. Shepard c/o owner, engr., William A. Loumas, c/o owner, archt.

▲ **Victor R. Beauchamp, Inc.**, 431 Ceder St. N. W., Wash., D. C., CA $1,407,619, SCHOOL of ENGINEERING and ARCHITECTURE, WASH., D. C. Catholic University of America, 620 Michigan Ave. N.W., Wash., D. C. Bids Nov. 13. CD 11/17, under LB.

▲ **The Ralph M. Parsons Co.**, 375 Park Ave., New York, N. Y., CA $15,000,000, design and construct CHEMICAL PLANT, DELAWARE CITY, DEL. Stauffer Chemical Co., Inc., 380 Madison Ave., New York, N. Y.

SOUTH

HEAVY CONSTRUCTION—BA

▲† **Florida**—BA 1/5—U. S. Eng., P.O. Box 4970, Jacksonville. Zone 1, culverts and spillway Levee 35B, Levee 38 Section 3 (E & W) required Islands along L-38: Section 3 and L-35B, S-38, S-113A Central and Southern Florida Flood Control Project, CIVENG-08-123-60-24. Extended date. CD 12/4.

▲† **Virginia**—BA 1/14—U. S. Eng., 237 4 Ave., Huntington, W. Va. diversion tunnel for John W. Flannagan Dam and Reservoir, CIVENG-46-022-60-46B. Plans deposit $5. CD 12/8.

▲† **West Virginia**—BA 1/21—U. S. Eng., P.O. Box 2127, Huntington, straightening, imprv. channels of Meadow River, Sewell and Boggs Creeks, Local Protection Project, in East Rainelle, Greenbrier and Fayette Counties, CIVENG-46-022-60-49. $1,000,000. Plans deposit $5. CD 12/16.

▲† **N. C., Greenville** — BA 1/22 — U. S. Information Agency, 1776 Pennsylvania Ave. N.W., Wash., D. C., clearing, grubbing, grading, roads, preloading site of radio transmitter and receiving stations, Voice of America. $1,500,000. Plans deposit $50. The Austin Co., 16112 Euclid Ave., Cleveland, O., archt. CD 12/16, under Unclassified.

BUILDINGS—BA

▲ **S. C., Greenville**—SCHOOL—BA 1/12—Greenville Co. School Dist., 520 N. Pleasantburg, 166,000 sq. ft. Northside High School, $1,500,000. Plans deposit $100. J. E. Sirrine Co., 215 S. Main St., archt. CD 8/11.

HEAVY CONSTRUCTION—LB & CA

▲ **VIRGINIA**—Dpt. Hys., 1221 E. Broad St., Richmond, **E. C. Bowles, Contractor**, 1506 Webster, Richmond, Va., and **F. G. Pruitt, Inc.**, 7505 W. Broad, Richmond, Va., CA $2,675,112, 2-lane highway, rein.-con. pavement, 2.99 mi. b. conc. pavement, 0.254 mi. Rtes. 95 and 73, State Proj. 0095-043-101, C1, B11; 84 S133 (2) Henrico Co., Bids Dec. 2, awarded Dec. 15. CD 12/8, under LB.

▲ **City, City Hall, Hopewell, Va., Owner Builds, $1,100,000**, sewage disposal system, HOPEWELL, VA. CD 11/17.

▲ **WEST VIRGINIA**—State Rd. Comm., Charleston, Zone 5. Bids opened 12/15.

W. Va.—**Robertson-Fowler, Inc.**, P. O. Box 2078, Huntington, W. Va., LB $1,238,579, grading, draining 1.384 mi. Interstate 64, and grading, b. conc. paving 0.295 mi. Sec. Rte. 13 from U. S. Rte. 60 to Interstate 64, Contr. No. 1, Proj. I-64-1(8)26, and S. 675(2), Cabell Co.;

W. Va.—**Haynes Constr. Co., Inc.**, P. O. Box 1497, Bluefield, W. Va., LB $198,256, grading, traf. bd. base course and b. conc. bottom and wearing courses 0.216 mi. Piedmont Rd.-Charleston Corp. Line Rd. on W. Va. 24, Proj. US 2 (6), Kanawha Co. CD 11/30.

▲ **GEORGIA**—State Rd. Dpt., 2 Capitol Square, Atlanta,

W. L. Cobb Constr., Box 410, Decatur, Ga., CA $1,902,990, b. conc. paving, new bridge, widen. 1 bridge and bridge culvert, 17.936 mi., F-024-1 (4), SR Meriwether and Coweta Counties. Bids Oct. 2, awarded Dec. 3. CD 10/8, under LB.

▲ **FLORIDA**—State Rd. Dpt., Holland Bldg., Tallahassee, Bids opened 12/15.

Fla.—**Constructors of Florida, Inc.**, Opa Locka, Fla., LB $1,818,145, (11 bidders), 8-lane divided b. conc. pavement, limerock base Type 1 b. conc. surf. course and binder course limerock base shoulders, Type 1-B surf. tr. 1.24 mi., SR 9-A FAI Proj. No. 1-95-1 (25) 7, Job No. 87270-3406, Dade Co.;

Fla.—**Wright Contg. Co.**, 1050 NE 5 Terrace, Fort Lauderdale, Fla., LB $2,879,160, (7 bidders), 6-lane divided b. conc. pavement, limerock base, Type 1 c. conc. surf. course and binder course, limerock base shoulders Type 1-B surf. tr. 1.019 mi. SR 25, FAI Proj. No. 1-195-1 (13) 5 Job No. 87090-3405, Dade Co.;

Fla.—**Marion Constr. Co.**, Ocala, Fla., LB $1,389,651, (9 bidders), 4-lane divided limerock base Type 1 b. conc. surf. course and binder course 4.376 mi. SR 5, Fed. Aid Proj. No. F 005-5(7) Job No. 70020-3176, Brevard Co.;

Fla.—**Duval Engineering & Constr. Co.**, Box 1588, Jacksonville, Fla., LB $767,441, (8 bidders), limerock base, b. conc. Types 1 and II, etc., 10.395 mi. SR 212 (Beach Boulevard) State Proj. Job No. 72190-3502, Duval Co.;

Fla.—**Troup Bros., Inc.**, Box 33168, Miami 33, Fla., LB $2,286,079, (9 bidders), 4-lane dual roadway, limerock base, Type I b. conc. surf. course with binder

course 3 dual and 3 single concrete bridges, 2.834 mi. SR 826 (Palmetto Road) State Proj. Job No. 87260-3104, Dade Co. CD 11/27.

▲† **Delta Constr. Co.**, 162 Millsaps Ave., Jackson, Miss., CA $1,355,326, east runway, connecting taxiway and airfield lighting, U. S. Naval Auxiliary Air Station, NBy 25484, MERIDIAN, MISS. Dist. P. Wks. Office, Sixth Naval Dist., Bldg. No. 13, U. S. Naval Base, Charleston, S. C. Bids Dec. 10. CD 12/15, under LB.

▲† **Great Lakes Dredge & Dock Co.**, 2400 Canal, New Orleans, La., CA $2,571,545, channel imprvt. of Atchafalaya River, Miles 89.0 to 95.2 (195), Iberia, St. Martin and St. Mary Parishes, CIVENG-16-047-60-73, LOUISIANA. U. S. Eng., foot of Prytania St., New Orleans, La. Bids Dec. 2. CD 12/7, under LB.

BUILDINGS—LB & CA

▲ **Southeastern Constr. Co., Goode Constr. Corp. and Thompson & Street Co.**, 301 W. 2nd St., Charlotte, N. C., CA Est. $5,000,000, BANK OFFICE, CHARLOTTE, N. C. American Commercial Bank, 204 S. Tryon, Charlotte, N. C. Walter Hook & Assocs., 303½ W. 4th St., Charlotte, N. C., archts.

▲ **A. C. Samford, Inc.**, Box 1229, Albany, Ga., LB $2,276,476, (11 bidders), men's RESIDENCE HALLS for single students, University of Florida, GAINESVILLE, FLA. Florida State Bd. Control Admin. Bldg., University of Florida, Gainesville, Fla. Bids Dec. 10. CD 11/17.

▲ **Wilson P. Abraham Constr. Co.**, 4743 Government, Baton Rouge, La., LB $2,060,000, SENIOR HIGH SCHOOL, south of East Johnson St. and east of Georgia and Kentucky Sts., BATON ROUGE, LA. East Baton Rouge Parish School Bd., 805 St. Louis St., Baton Rouge, La. Bids Dec. 15. CD 11/17.

▲ **Ralph & Richard Drees**, Timberlake, Erlanger, Ky., Owner Builds, $1,800,000, 100-one floor, bsmnt., brick HOUSES on Timberlake, ERLANGER, KY. James Viox, Jr., 117 Graves Ave., Erlanger, Ky., engr.

MIDDLE WEST

BUILDINGS—BA

▲ **Mich., Dunbee**—SCHOOL—BA 1/14—Dunbee Community High School, high school, Ypsilanti St., $1,350,000. Warren S. Holmes Co., 802 N. Washington, Lansing, archt.

▲ **Ill., Dixon**—PLANT—BA About 1/15—Medusa Portland Cement Co., Lee Rd. and Monticello Blvd., Cleveland 18, O., 1,000,000 bbl. plant expansion, incl. kiln, $3,000,000. W. R. Bendy, Consulting Engineers, 6326 Bartmer, St. Louis, Mo., engrs. CD 12/9.

▲ **Wis., Milwaukee** — SCIENCE — BA 1/21 — Bd. of Regents of University of Wisconsin, Madison, science, $2,200,000. Plans deposit $50. Grellinger & Rose Assocs., 757 N. Broadway, Milwaukee, Zone 2, archts. CD 3/13.

HEAVY CONSTRUCTION—LB & CA

▲ **OHIO**—State Hy. Dpt., State Dpts. Bldg., Columbus, Zone 15. Bids opened 12/8.

O **Harry Miller Excavating Co. & Central States Constr. Co.**, P.O. Box 54, Suffield, O., LB $832,970, est. $860,000, (5 bidders), Type T-71, T-35 and structure 3.033 mi. State Rt. 5 (2.56-4.74). Proj. 557, Trumbull Co.

O —**Shelly & Sands, Inc.**, Thornville, O., LB $1,660,698, est. $1,840,700 (6 bidders), Type T-35 and structure 11.463 mi. State Rte. 7 (40.90-51.85), Proj. 558, Washington Co. CD 11/11.

▲† **George D. Hardin**, 2130 S. Michigan Ave., Chicago, Ill., CA $2,198,764, air conditioning 8th and 9th floor of main U. S. Post Office, CHICAGO, ILL. General Services Admin., 219 S. Clark St., Chicago, Ill. Bids Nov. 30. CD 12/10, under LB.

▲ **S. A. Healy Co.**, Box 11, McCook, Ill., CA $2,184,850 (Cont. 80.82-59.31), auxiliary outlet sewer, Leamington Ave. Sys., Cont. 1-D, CHICAGO, ILL. Dpt. Purchases, City Hall, Chicago 2, Ill. Bids Oct. 28. CD 11/11, under LB.

▲ **Square Constr. Co.**, 115 S. Haven St., Baltimore 24, Md., LB $1,820,240 (5 bidders), 4,684 ft., 150 in. main sewer in Pintz Rd. from 569 ft. W. of Chicago Rd. to S. Pennsylvania Ave., Oak Creek, MILWAUKEE-WIS. Metropolitan Sewerage Comm. of the Co. of Milwaukee, P.O. Box 2079, Milwaukee 1, Wis. Bids Dec. 14. CD 11/24.

BUILDINGS—LB & CA

▲ **S. N. Nielsen Co.**, 3059 W. Augusta Blvd., Chicago, Ill., LB $5,184,000 (8 bidders). Proj. 231, Robert Brooks HOUSING Extension, 13th St. and Blue Island Ave., CHICAGO, ILL. Chicago Housing Authority, 608 S. Dearborn St., Chicago 5, Ill. Bids Dec. 15. CD 12/7.

▲ **Sumner Sollitt Co.**, 307 N. Michigan Blvd., Chicago 1, Ill., CA $4,500,000, 11 story, 95 x 188 ft., brick, rein.-con. OFFICE, CHICAGO, ILL. John Blair & Co., 520 N. Michigan Ave., Chicago 11, Ill. Awarded Dec. 11. CD 8/19.

MISSISSIPPI TO ROCKIES

HEAVY CONSTRUCTION—BA

▲† **Tex., Wichita Falls**—HOUSING—BA 1/6—Procurement Office, Sheppard Air Force Base, rehabilitating, 612 Wherry Housing units. Over $1,500,000. CD 12/3.

BUILDINGS—BA

▲† **Okla., Clinton**—HOUSING—BA About 2/4—Procurement Office, Clinton-Sherman Air Force Base, 300 unit Capehart housing, Clinton Sherman Air Force Base No. 3, $4,950,000. Hudgins, Thompson, Ball & Assocs., 1411 Classen Blvd., Oklahoma City, archts. CD 4/29/59.

HEAVY CONSTRUCTION—LB & CA

▲ **MINNESOTA**—State Hy. Dpt., Capitol Approach, St. Paul. Bids opened 12/11.

Minn.—**Barton Contg. Co.**, Osseo, Minn., LB $1,867,369, (10 bidders), bit. surf. concrete paving, 8.3 mi. in Rochester, Olmsted Co.;

Minn.—**McCree & Co.**, 918 New York Bldg., St. Paul, Minn., LB $1,335,704, (10 bidders), grade, base, plant mixed bit. surf. concrete paving and bridge 13 mi. between Hawley and Lake Park, Clay and Becker Counties;

Minn.—**Alley Constr. Co., Inc.**, Box 387, Faribault, Minn., LB $1,227,670, (9 bidders), grade, base, road-mixed bit. surf. and bridges 6.9 mi. near LeSueur, LeSueur and Sibley Counties;

Minn.—**Kimmes & Bartelma Constr. Co., Inc.**, Hastings, Minn., LB $525,420, (14 bidders), grade, base, bit. base and bridge 3.5 mi. near Bayport, Washington Co. CD 11/27.

▲ **Fruin-Colnon Contg. Co.**, 1706 Olive St., St. Louis, Mo., and **Utah Constr. & Mining Co.**, 100 Bush St., San Francisco, Calif., CA $50,000,000, for plant with equipment, design, transmission sys., lands and rights-of-way, Taum Sauk Hydroelectric Power Plant, Black River near LESTERVILLE, MO. Union Electric Co. of Missouri, 315 N. 12th Blvd., St. Louis, Mo. CD 8/14/58.

▲† **Federal Pacific Electric Co.**, 888 N. Keyser Ave., Scranton, Pa., CA $1,111,860, electric switch gear WS-107A-2 technical facilities, Ellsworth Air Force Base, RAPID CITY, S. D. U. S. Eng., 1709 Jackson St., Omaha 2, Neb. Bids Dec. 3, awarded Dec. 11. CD 12/7.

BUILDINGS—LB & CA

▲ **George H. Burden & Co., Inc.**, E. Capitol and McLean, Little Rock, Ark., CA $1,117,805, HIGH SCHOOL, LITTLE ROCK, ARK. Catholic Diocese of Arkansas, 305 W. 2 St., Little Rock, Ark. Bids Nov. 12. CD 12/2, under LB.

▲ **Hahner & Foreman, Inc.**, 423 N. St. Francis St., Wichita, Kan., LB $1,465,000, est. $1,600,000 general contract incl. mechanics and electric, 2 story, ground floor 184 x 200 ft., St. Joseph HOSPITAL addn. alterations, WICHITA, KAN. Sisters of St. Joseph of Wichita, 3400 S. Grand Ave., Wichita, Kan. Magnolo & Quick, 4908 Delmar Blvd., St. Louis 8, Mo., archts. Bids Dec. 9.

▲ **Manhattan Constr. Co.**, 1811 Crawford St., Houston, Tex., LB $1,208,207, LABORATORY and MEDICAL BLDG., addns., remodeling, Texas Medical Center, HOUSTON, TEX. Baylor University College of Medicine, 1200 N.M. Anderson Blvd., Houston, Tex. Bids Dec. 8. CD 5/6/58.

▲ **Russell M. & Herbert A. Writer & John P. Cleary**, 6090 Smith Rd., Denver, Colo., Owner Builds, $4,000,000, 8 story, brick, steel AERO ARTS CENTER, heliport on roof, DENVER, COLO. B. W. Lorance, 2801 E. Colfax, Denver, Colo., archt.

FAR WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

January 12 Washington

STREETS AND ROADS

January 8 Arizona — January 14 California

▲† **Idaho, Mountain Home** — TITAN BASE — BA After 12/31—U. S. Eng., City-County Airport, Walla Walla, Wash., Titan base, vicinity of Mountain Home Air Force Base, Inv. M-60-1. Plans deposit $200. SD 12/4.

▲ **Calif., Pomona**—BA 1/18—City, City Hall, constr. of underpass at Southern Pacific and Union Pacific Railroads on White Ave., $1,000,000. CD 4/18/49.

BUILDINGS—BA

▲ **Hawaii, Honolulu**—SCHOOLS—BA 1/7—City and Honolulu County, Punchbowl and King St., Waimalu Elementary School Part 1, Park & Vee Ltd., 479 Olohana St., archts. CD 9/31; Mokapu 2nd Elementary School, Law & Wilson, 442 N. King St., archts.; rein.-con. Kaala Elementary School addn., Frost, Frost & Fujioka, 752 Kapahulu Ave., archts. Plans deposit $50 each.

▲ **Calif., Covina** — SCHOOL — BA 1/13 — Covina High School Dist., 165 W. Dexter St., addns., remodeling North View High School, $1,400,000. CD 10/6.

▲† **Calif., Camp Irwin**—HOUSING—BA On Or About 1/15—U. S. Eng., 180 New Montgomery St., San Francisco, 140, single unit, 1 story military family housing, Title VIII (Capehart), incl. exterior utilities, site preparation, streets, sidewalks, etc., ENG-04-203-60-17, $2,000,000.

▲† **Calif., Camp Irwin**—HOUSING—BA 1/15—U. S. Eng., 180 New Montgomery St., San Francisco, 140 units Capehart housing, ENG-04-203-60-178, $2,000,000. CD 12/17.

▲ **Calif., Norwalk**—SCHOOL—BA 1/19—Cerritos Junior College Dist., 11442 E. Alejandra Blvd., rein.-con. school addns. $1,500,000. CD 10/5.

HEAVY CONSTRUCTION—LB & CA

▲ **Williams & Burrows, Inc.**, 500 Harbor Blvd., Belmont, Calif., LB $2,278,882, (3 bidders), reconstr. Central Reservoir, near 23rd Ave. and MacArthur Blvd., involving 11,000 cu. yd. excav., 19,000 cu. yd. embankment, 2,200 cu. yd. concrete, etc., OAKLAND, CALIF. East Bay Municipal Utility Dist., 2130 Adeline St., Oakland, Calif. Bids Dec. 11. CD 6/9/58.

BUILDINGS—LB & CA

▲ **Regents of University of California**, Admin. Bldg., Berkeley, Calif., rejected bids 8 story with 2 bsmnts. and 2-level penthouse, rein.-con. CHEMISTRY BLDG., BERKELEY, CALIF. LB $7,007,000, with lab. furniture, LB $5,957,000 without lab. furniture. CD 11/11, under LB.

▲† **Sheridan-Murray**, 236 North Lake Ave., Pasadena, Calif., (joint venture) LB $3,644,000, (3 bidders), 230 family Capehart HOUSING units, Mather Air Force Base, IFB 04-612-60-14, SACRAMENTO, CALIF. Base Procurement Office, 3510 Chapel Annex, Mather Air Force Base, Sacramento, Calif. Bids Dec. 15. CD 12/8.

▲ **Dinwiddie Constr. Co.**, 2211 Adeline, Oakland, Calif., CA $7,000,000, 22 story American President Lines HEADQUARTERS BLDG., California and Kearny St., SAN FRANCISCO, CALIF. Natomas Co., 111 Sutter, San Francisco, Calif. Anshen & Allen, 461 Bush St., San Francisco, Calif., archts. Bids July 20. CD 7/17, under American President Lines, as owner.

▲ **M & K Corp.**, 519 Calif., San Francisco, Calif., LB $1,148,000, general contract 6 story LIBRARY addn., San Jose State College, SAN JOSE, CALIF. State Div. Architecture, 1120 N. St., Sacramento, Calif. Bids Dec. 15. CD 12/10.

CANADA

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

February 3 British Columbia

STREETS AND ROADS

January 6 Ontario

Northwest Territories—BA 1/4—Northern Canada Power Comm., 251 Bank St., Ottawa, Ont., electrical equipment and wiring, Snare Falls power development, Snare Falls, $800,000. Plans deposit $200. Montreal Engineering Co. Ltd., 244 St. James St. W., Montreal, Que., engrs.

HEAVY CONSTRUCTION—LB & CA

BRITISH COLUMBIA—B. C. Government, Parliament Bldgs., Victoria. Bids opened 12/9.

Emil Anderson Constr. Co. Ltd., 4482 Main S., Vancouver, B. C., LB $2,289,022, (10 bidders), construct 10.68 mi. Southern Trans-Provincial Hy. from Summit Lake to junction with Hy. No. 6 (Section 2). Proj. 1095. CD 12/1.

▲ **Foundation Maritime Ltd.**, 135 Lower Water St., Halifax, N. S., LB $1,234,953, (29 bidders), harbor imprvs., wharf and shed, CORNER BROOK, NEWFOUNDLAND. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont.

▲ **Dravo of Canada Ltd.**, 159 Bay St., Toronto, Ont., LB $1,343,727, outfall sewer and ancillary works, Humber Sewage Treatment Plant, TORONTO, ONT. The Municipality of Metropolitan Toronto, 67 Adelaide St. E., Toronto, Ont.

▲ **RCA Victor Co., Inc.**, 1001 Lenoir St., Montreal, Que., CA Est. $20,000,000, 1,200 mi. microwave communications system from Grande Prairie, Alta. to Yukon-Alaska border, incl. about 50 microwave stations at approx. 25 mi. intervals on route generally following the Alaska Hy. ALBERTA-YUKON. Canadian National Rys., H. C. Greensides, ch. engr. 355 McGill St., Montreal, Que.

BUILDINGS—LB & CA

▲ **Magil Constr. Co.**, 410 Gratton St., St. Laurent, Montreal, Que., LB $1,540,000, (12 bidders), Sir Winston Churchill HIGH SCHOOL, MONTREAL, QUE. Protestant School Bd. of St. Laurent, St. Laurent, Montreal Que. Bids Dec. 9. CD 11/10.

LATIN AMERICA

HEAVY CONSTRUCTION—LB & CA

▲† **HONDURAS**—Bureau P. Rds., Dpt. Commerce, Inter-American Hy. Div., 18th and F Sts. N. W., Wash., D. C., U. S. A., Bids opened 12/15.

Johnson, Drake & Piper, 2444 W. Holcombe Blvd., Houston, Tex., LB $2,197,850, (10 bidders), Inter-American Highway, El Salvador Border-Nicaragua Border, Honduras Proj. 56-1(B). CD 12/16.

▲† **REPUBLIC OF NICARAGUA**—Bureau P. Rds., Dpt. Commerce, Inter-American Hy. Office, Wash., D. C., U. S. A., Bids opened 12/15.

Empressa Constr. Rafael & Herrera Ltd., San Jose, Costa Rica, LB $1,066,130, (6 bidders), Inter-American Highway, Condega-Sebaco, Proj. 9-B. CD 11/27.

FOREIGN

HEAVY CONSTRUCTION—LB & CA

▲ **Roberts Constr. Co., Ltd.**, 10 Pickering St., Durban, Union of South Africa, CA Est. $5,500,000, ocean terminal, DURBAN, UNION OF SOUTH AFRICA. South African Railways & Harbours Bd., Pretoria, Union of South Africa. Michael Zakrzewski, 1454 Sanlam Bldg., Durban, Union of South Africa, engr.

(Proposal Advertisements see pp. 68 to 70)

Aerial view of intake construction area of Niagara Power Project, being built under the direction of the Power Authority of the State of New York. Contractor for the intake portion is Merritt-Chapman & Scott Corp.

Steel Cofferdam for Intakes of Niagara Power Project

Located three miles above the Falls, the Niagara Power Project intake facilities consist of two wide-mouth, harmonica-type structures 840 ft long. The water, some 50,000 cu ft per second, will flow through the intake, conduits, and canal to the new generating plant. Flow into the intake and conduits will be controlled by vertical-lift gates.

Other phases of intake construction required the relocating of water lines to six existing companies, extensive river bottom excavation, and an upstream wall 500 ft long to guide water to the intake.

Bethlehem supplied 5,500 tons of steel sheet piling for the cofferdams which were built into the river, surrounding the construction area.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA. *Export Distributor: Bethlehem Steel Export Corporation*

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—with the low-cost Barber-Greene 840 Series

Barber-Greene's 840 Series continuous asphalt plant has proved a profit-maker for more than 1,000 owners. It offers unequaled versatility . . . unmatched portability . . . more mix for the money than any plant in its range. Here's why:

For Cold Mixes—all you need are mixer and calibrated feeder to produce capacities to 55 tons per hour.

For Intermediate-Hot Mixes—add a dryer to your mixer-feeder combination and produce any intermediate-hot mix at capacities to 55 tons per hour.

For High-Type Hot Mixes—simply add a gradation unit and you're set to meet even the toughest specs of highest-type mixes.

For Flexibility—you can't beat the 840 Series. All units are mounted on pneumatic tires for fast truck towing. Jacklegs speed plant setup, eliminate need for cribbing. You move only the components required to meet mixing needs . . . cover the entire range from cold mix to high-type multiple-aggregate mixes. Write for bulletin.

59-14-A

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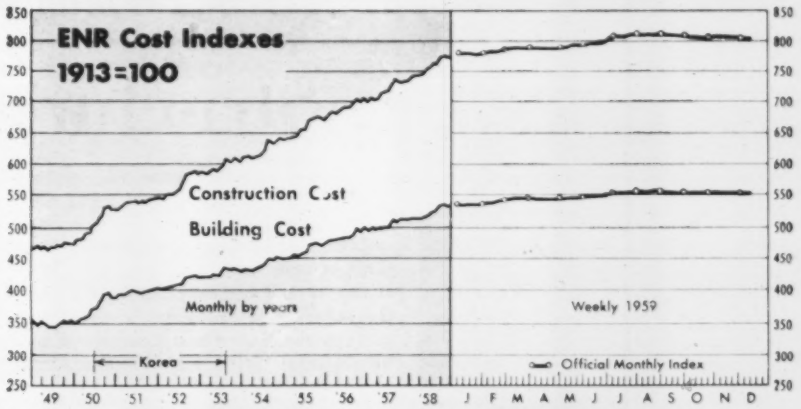
CONVEYORS . . . LOADERS . . . DITCHERS . . . ASPHALT PAVING EQUIPMENT

Construction Scoreboard

CONTRACTS ...



CURRENT COST INDEXES

ENR INDEXES (1913=100), 20-cities' average	Week of Dec. 17 1959	% Change from Nov. 19 1959	% Change from Dec. 18 1958
Construction Cost	809.10	−0.03	+4.5
Building Cost	553.27	−0.04	+3.4

To convert above indexes to 1926 = 100: Divide Construction Cost by 2.080; Building Cost by 1.850.
1949 = 100: Divide Construction Cost by 4.770; Building Cost by 3.518.

AMOUNT OF CONTRACTS LET

	This Week	Cum. 52 wks 1959	Chge '58-'59 %
	millions		
All Heavy Constr	$408.1	$20,214.0	+ 5
By Ownership			
PRIVATE	213.3	10,299.1	+33
PUBLIC	194.8	9,914.9	−13
State & Municipal	138.2	7,178.7	−17
Federal	56.6	2,736.2	− 3
By Type of Work			
PUBLIC			
Waterworks	0.8	367.9	+20
Sewerage	11.8	644.1	+ 4
Bridges*	9.5	688.5	− 3
Highways	64.9	2,857.6	−23
Earthworks, Dams & Waterways	42.4	908.2	−13
Buildings:			
Excl. Housing	47.0	2,545.6	− 2
Housing	2.5	564.3	−46
Unclassified	16.8	1,350.8	− 1
PRIVATE			
Buildings			
Mass Housing	55.3	4,637.0	+24
Commercial	51.3	2,141.1	+19
Industrial	47.1	2,963.5	+69
Unclassified	58.7	545.4	+27

*Includes private bridges

NOTE: Minimum size projects included are: Waterworks and waterways, $53,000; other public works, $88,000; industrial buildings, $110,000; other buildings, $400,000.

CAPITAL . . .

New Capital For Construction	Week of Dec. 17	Cum. 51 wks 1959	Chge '58-'59 %
	millions		
Corporate Securities	$75.7	$4,159.3	−17
State and Municipal:			
All Except Housing	159.5	5,829.7	− 6
Housing	....	119.7	+ 1
Federal Loans	....	137.0	−30
Federal Aid	....	3,343.4	+29
Total Nonfederal	$235.2	$13,589.1	− 4
Federal Appropriations:			
Projects in U. S.	....	$ 3,564.1	−16
Outside U. S.	....	22.4	−50
Total New Capital	$235.2	$17,175.6	− 7

BACKLOG OF PROPOSED HEAVY CONSTRUCTION

	Nov. 1959 (millions)	Percent Change from last Month	Year
Total U. S. (ENR reported)	$116,655	+0.9	+2.5
By Ownership			
Private	50,624	+0.5	+3.3
State & Municipal	51,530	+1.2	+1.8
Federal	14,501	+1.0	+2.7
By Type of Work			
Waterworks	2,810	+0.3	+ .9
Sewerage	3,784	+2.6	+ .3
Bridges	3,416	+1.1	+1.0
Highways	12,841	+1.8	−1.7
Earthwork, Waterways	12,110	−0.6	+1.7
Public Buildings	21,169	+1.5	+3.2
Industrial Buildings	17,022	+1.0	+1.5
Commercial Buildings	23,066	+0.5	+3.5
Unclassified, Private	10,535*	−0.2	+5.6
Unclassified, Public	9,900	+1.6	+2.7

* Includes private bridges, $89 million.

ENR COST INDEXES IN 22 CITIES, 1913=100

City	Construction Cost Dec. 1959	Construction Cost Percent Change from last Month	Construction Cost Percent Change from last Year	Building Cost Dec. 1959	Building Cost Percent Change from last Month	Building Cost Percent Change from last Year
Atlanta	623	0	+4.5	499	0	+5.7
Baltimore	745	0	+5.1	558	0	+2.9
Birmingham	652	0	+5.3	515	0	+4.5
Boston	823	−0.9	+1.9	554	−1	+2.3
Chicago	918	−0.4	+6.7	581	−0.7	+3.2
Cincinnati	814	−0.1	+4.8	539	−0.2	+4.5
Cleveland	921	0	+4.6	554	0	+3.9
Dallas	604	0	+5.4	490	0	+4.5
Denver	747	0	+2.2	545	0	+2.3
Detroit	959	−0.2	+7.5	595	−0.3	+3.7
Kansas City	798	0	+3.9	553	0	+3.7
Los Angeles	868	−0.4	+5.4	554	−0.6	+4.6
Minneapolis	859	0	+4.3	569	0	+2.8
New Orleans	641	+1.1	+3.9	511	+0.7	+3.5
New York	1,008	−0.3	+7.2	643	−0.4	+5.6
Philadelphia	791	0	+0.1	578	0	+1.6
Pittsburgh	849	0	+2.7	601	0	+0.8
St. Louis	874	−0.4	+3.5	573	−0.6	+1.8
San Francisco	850	−0.5	+4.6	549	−0.7	+2.9
Seattle	831	−0.4	+3.9	500	−0.6	+3.3
U. S.—20 Cities' average	**809**	**−0.2**	**+4.5**	**553**	**−0.3**	**+3.4**
Montreal	630	0	+4.4	459	0	+2.1
Toronto	657	−0.3	+3.0	488	−0.4	+1.9

Space Era Structures Bring New

"An engineer who is a pure civil engineer is out of date."

That blunt appraisal comes from a civil engineer, B. F. Rose, Jr., manager of a new architect-engineer division of a missile engine and fuel manufacturer.

His firm, Aetron Division of Aerojet-General Corp., Azusa, Calif., is the newest big competitor for the construction design dollar.

Establishment of Aetron is another indication of what the step into space is doing to the construction industry. Within the last year, Lockheed Aircraft Corp. acquired controlling interest in Puget Sound Bridge and Dredging Co.; a subsidiary of Collins Radio Co. established a group for the design of ground installations for communications systems; and Northrop Aircraft, Inc., bid for construction of a monorail in Seattle (ENR May 7, p. 21).

Aerojet-General's decision was based on the conviction that bigger and more integrated design staffs are needed today, both for military installations, and for industry. The same conviction resulted in the joint venture for engineering design formed by Howard, Needles, Tammen & Bergendoff, consulting engineers; Abbott, Merckt & Co., Inc., industrial engineers; and Kahn and Jacobs, architects, all of New York City (ENR Dec. 17, p. 238).

Aetron, headquartered at Covina, Calif., comes into existence full grown as one of the biggest design groups in the missile and industrial fields. Prior to its establishment as a separate operating division, Aetron was an integral unit of the parent corporation.

Value of the work it designed in the last 10 years is placed at more than $500 million. That includes projects for Aerojet-General, the Atomic Energy Commission, all the military services, General Tire and Rubber Co., Westinghouse Electric Corp. and many of the major aircraft manufacturers. The division does not construct, although occasionally it performs construction management functions.

The group's name comes from the work Aetron does—architectural, engineering and electronic design. The interrelationship of these design functions is important, Mr. Rose believes.

"More and more, all civil, mechanical and electrical engineering functions are affected by consideration of electronics and nucleonics," he says.

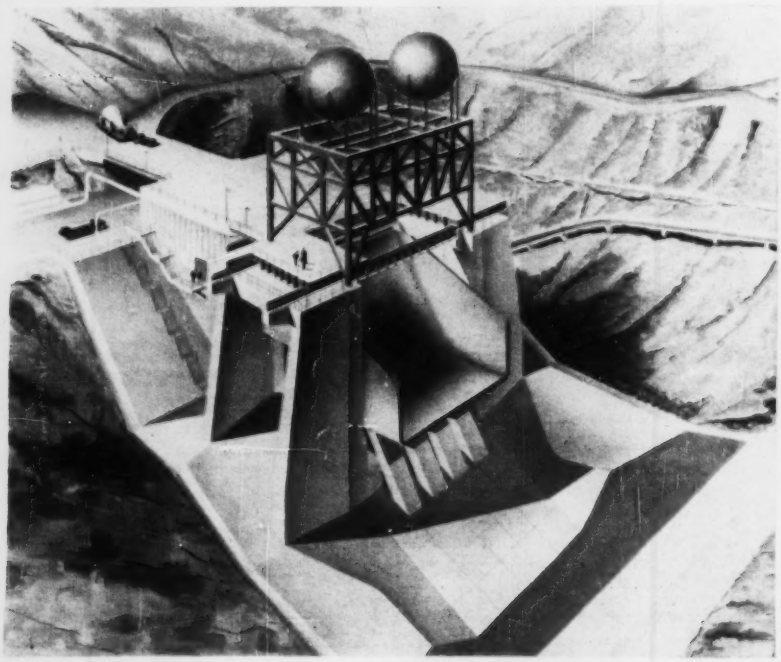
To do the kind of engineering job that is being called for today, "the civil engineer must take advantage of skills that previously he didn't think were in his bailiwick," Mr. Rose says. Among those skills, Mr. Rose lists electronic computation, automation, safety and quality control.

But the premise works two ways. Other types of engineers—control engineers, for example—must appreciate a civil engineer's background, training and abilities, Mr. Rose emphasizes.

That meshing of engineering functions and skills places a special emphasis on engineering managers, according to Mr. Rose. It means that engineers in executive capacities "must understand the principles of electronics, automation and physics, then make sure that his team applies them."

The team Mr. Rose must coordinate is a large one—more than 500. About 300 hold college degrees and more than 70 are registered architects or engineers—the latter representing all branches of the profession. Greatest number is in the civil-structural area.

In the mechanical and electrical groups there are specialists in cryogenics, telemetry, pneumatics and closed circuit television.



Missile test stand is a job for an integrated engineering staff:

Engineer Rose works in electronics . . .

Needs and New Faces

To obtain the best result in design, Mr. Rose cites the use of two specialty groups—a procurement or materials section and a construction section.

The procurement group generally does not actually buy anything. But its job is to know of new developments in construction and what materials and processes are available. It constantly sifts technical journals and books, covers trade shows and studies new products. Then it reviews designs to see that the most modern and most readily available materials are specified.

The construction group checks all plans as though it were the contractor given the job of building the project. Resulting modifications bring more efficient and less expensive construction.

Sometimes these modifications stem from past experience in another field. This supports Mr. Rose's premise that science and the various engineering professions are interrelated.

On a nonmilitary project—a synthetic rubber plant at Odessa, Tex., for General Tire and Rubber Co.—Aetron's military background saved time and money for the owner. "We accomplished that by being able to apply the same reliability of instrumentation that we developed in the missile field. And we were also able to make intelligent quality substitutions. For example, we used cast iron pipe in some spots where others might have called for stainless steel," Mr. Rose explains.

Construction is under way now on one of Aetron's major design projects—a rocket test stand at Edwards Air Force Base that will be the nation's largest. It is being built to only half of ultimate capacity, but will be capable of simultaneously testing two engines of 1.5 million lb thrust each. Included in the construction program is foundation work and deflector supports for the ultimate-capacity installation.

Aetron obtained the fixed-price design contract in April. Sverdrup and Parcel Engineering Co., St. Louis, was selected as subcontractor for certain civil and structural portions of the project at the request of the Corps of Engineers, which suggested three possible firms.

The first increment is being built by Del E. Webb Construction Co. under a $4.7-million contract.

The steel superstructures supporting the rocket engines and other equipment will be bolted to heavy steel bearing plates at the top of the concrete test stand. The bearing plates are anchored into a 12,000-cu-yd concrete mass by long, high tensile steel cables that will be post-tensioned to minimize deflection during static rocket tests.

The concrete structure will have a total height of about 125 ft. Initial firing opening at deck level will be 6 x 29 ft. Strain gages will be located throughout critical stress points of the concrete structure to record the effect of dynamic thrust loads.

Maintenance shops, equipment rooms, storage areas and instrumentation terminal rooms will be located directly behind the stand in a two-story heavy concrete support building.

ONE NEW FACE is B. F. Rose, of Aerojet General Corp.'s new A-E division.

. . . with architects in figuring out building design . . .

. . . and on site and structural plans.

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- Boiler Breechings
- Flues and Ducts
- Condenser Shells
- Condenser Piping
- Heavy Turbine Housings
- Fan and Blower Housings
- Dust Collector Housings
- Industrial Gas Mains
- Expansion Joints
- Hoppers and Bunkers
- Tanks and Vats
- Pressure Vessels
- Wind Tunnels
- Crane Bridge Girders
- Trolley Frames and Trucks
- Rigid Frames
- Roll-Over Fixtures
- Tank Turrets
- Gun Mounts
- Heavy Truck Bodies
- Engine Frames and Bases
- Crawler Frames
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Red Tape Stalls Dam a Year

Completion of the $170-million Barkley Dam on the Cumberland River has been delayed for one year because of "Buy American" regulations. A three-month holdup in award of generators for the Kentucky project resulted in the loss of one construction season. That set back completion until 1966.

Six bids were received last March for the four 32,500-kw generators, two of them from foreign companies. Apparent low bid came from a foreign concern, English Electric Export and Trading Co., Ltd. But the U. S. Army Engineer District recommended the contract go to General Electric Co., the second lowest bidder.

Under "Buy American" rules, when foreign bids are received, the recommendation is sent through review by the Chief of Engineers and Assistant Secretary of the Army for Logistics. They concurred with the district engineer's decision that the low foreign bid was "nonresponsive."

The English company then protested the award to the Comptroller General of the U. S. That action required three months to settle, but the Comptroller agreed with the earlier decisions.

The Corps of Engineers argued that English Electric had failed to submit all data specified in the invitation with respect to a lifting device.

English Electric contended such detailed information properly and normally would be worked out and presented in full only after the contract had been awarded.

English Electric also lost out on another project. Last week, the U. S. Bureau of Reclamation awarded a contract for eight, 112,500-kw generators for Glen Canyon Dam to Baldwin-Lima-Hamilton Corp., second low bidder. English Electric was apparently low with its bid of $6,392,000. The domestic firm was next at $6,214,552 (ENR Dec. 3, p. 19).

The decision was made under provision of the Buy American act. It says foreign bids in competition with those from U. S. companies be increased by either 6% (if the bid includes duty and other costs incurred after arrival in the U. S.) or 10% (if such costs are not part of the bid).

The English Electric bid, raised by 6%, meant an adjusted figure of $6,587,402, or $195,402 more than that of Baldwin-Lima-Hamilton.

Lockheed Eyes Equipment Firm

Construction continues to look like a fertile field for growth to executives of Lockheed Aircraft Corp., Burbank, Calif. Earlier this year, it bought controlling interest in Puget Sound Bridge and Dredging Co., a Seattle general construction and shipbuilding company (see p. 64).

Now Lockheed is studying the possibility of buying a construction machinery and turbine manufacturer—Baldwin-Lima-Hamilton Corp. of Philadelphia.

A Lockheed management team talked with Baldwin-Lima-Hamilton officials several weeks ago, but no final decision was reached. It is only one of about 90 companies Lockheed is considering.

Chances of a marriage to Baldwin-Lima-Hamilton are probably better than one to some of the other candidates. A Lockheed spokesman cautioned, however, that "the wooing could still end in breach of promise."

In another merger, a construction and agricultural equipment company is looking to electronics for growth. Minneapolis-Moline Co., Hopkins, Minn., broke into the space age through purchase of Hymac Electronics Corp. of Culver City, Calif.

Rock Salt Makers Facing Antitrust Probe

Justice Department antitrusters have launched a new grand jury investigation of alleged identical bidding by the makers of rock salt. The action follows receipt of over a dozen complaints.

Municipalities and state highway commissions report receiving identical bids for salt used to melt snow on highways. In some cases, state authorities say, identical bids had been received for several years.

The investigation will be handled by the Antitrust Division's Chicago office, which has been directed to go ahead with formation of a grand jury in Rock Island, Ill. Subpoenas have not yet been prepared, but will probably be sent to officials of salt firms, distributors and the purchasers.

Cincinnati and the Ohio Highway Department are among the complainants. Cincinnati says it received identical bids from International Salt Co., Morton Salt and Diamond Salt.

Where Do We Go From Here?

- **The unsettled labor disputes of 1959 leave the nation facing a new year of critical, complex labor problems.**
- **Failure to compromise conflicting views has defined the issues, but the solutions are not yet in sight.**
- **Will management and labor be able to settle the basic problems before the public demands new legislation?**

"Labor and industry had better stick together or they will surely hang separately."

Congressman John H. Dent (D., Pa.) has issued this warning to those who should be primarily responsible for solving the unsolved labor problems that marked 1959.

Looking back at bargaining developments in the last 12 months, unions and employers have found that labor relations isolation by industry is a thing of the past—in construction, steel, aluminum, copper, shipping, railroads and meat packing, to name a few.

A new concern for the public's interest has arisen and a deeper sense of the common interests of labor and management has come to pass. But the great divergence in approach remains.

The big questions still revolve around inflation and the relative legal, economic and human rights of workers, employers and the public. Inherent in these is the basic question of who is entitled to what and at whose expense. And this gets into the provocative questions of pricing, profits, unionism, the right to strike and the right to engage in large-scale bargaining—questions that will trouble the nation for months to come.

There is fear in many quarters that labor and management may default—and that the public will provide the answers for all industries, through Congressional legislation. This fear has already made such strange bedfellows as THE WALL STREET JOURNAL and teamster president James Hoffa. One says that government interference, such as compulsory arbitration of labor-management differences, would lead to wage and price controls and end we know not where. The other predicts it would be "only a matter of time" before socialism.

Can you ban strikes, destroy free collective bargaining and chop up unions without getting into profits, interlocking corporate directorships and national syndicates, Mr. Dent asks. "Every American," he says, "should remember the lesson of history—it is not possible to usurp the liberty of any person or group without reducing and eventually destroying the liberties of all people and groups."

During recent weeks, recognition of this common danger has become widespread. But aside from this, labor and management attitudes over the last 12 months have had little in common, with the notable exceptions reflected in the Kaiser Steel contract and the formation of the Construction Industry Joint Conference.

Labor and management generally agree that "inflation" is simply a decline in the purchasing power of the dollar. But from that point on they lock horns on the basic issues. Congress is the only agency that can halt the steel dispute if the strike resumes in January—and it may be forced, regardless of the steel situation, to take a stand on the issues and to try a new approach to industrial strife.

Some members of the building trades predict that "anything can happen" because of the way the stage has been set. They are convinced that those in the construction industry will feel the impact as much as anyone else.

In the propaganda preparations for the coming showdown—whether voluntary or forced—the inheritance from 1959 and the challenge for 1960 is clear.

The views of industrial management, as currently expressed by spokesmen for the steel industry, run like this: Wage increases force prices up by adding to production costs and create inflation. We can't stay in business without profits, we can't make profits without customers, we can't keep customers with high costs and low productivity and we can't improve productivity without eliminating work rules that protect waste and inefficiency. Steelworkers wages are high enough to allow a breathing spell. In the long run, it is rising productivity, not wage increases, that push up our standard of living.

Labor continues to make it clear that it is not satisfied with the past, that it won't stand still and that it won't go backwards. It insists it is entitled to a larger share of the wealth it produces and that the cure for inflation should be squeezed out of management, not out of labor. It says labor is not an expendable item, calls the work rule criticism unjustified and says the critics overlook the safety, health and human factors involved. It argues that wages follow rather than boost prices, which, it asserts, have been artificially set to make the public pay for capital investments, technological changes, research, development, high management salaries, stock options and other excessive executive fringe benefits. Its economists say wage increases are essential for growth of consumer buying power on which an expanding economy depends.

Woven into all this is the management argument now being pushed by members of the steel industry that the "root" of the inflation problem is the "power of dominating unions" to force increases in employment costs. The problem is more deserving of public and Congressional concern than the immediate steel dispute, says one steel official.

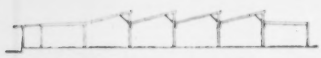
Labor generally views such talks as an effort to emasculate unions so they will be powerless to protect or improve the wages and working conditions of their members.

Those are some of the arguments that point up the critical labor problems the old year leaves behind. How they are handled, observers feel, will determine the future of free collective bargaining and all it implies. For 1960, this question remains: Where do we go from here?

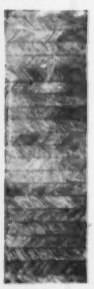
(*Labor continued p. 68*)

Manufacturing plant of National Can Company, Vancouver, Washington. Engineers: Western Engineers Consultants, Eugene, Oregon, and John Laurila, Jr., Vancouver. Contractor: Port of Vancouver.

Space provided: manufacturing section of 250' x 280'; warehouse of 250' x 220'; covered truck loading dock 75' x 220'; covered railroad loading dock 20' x 500'. *Structural framing:* glulam beam-and-column bents for manufacturing section, offices and loading docks; glulam timber trusses of 125-foot span for warehouse section. *Exterior walls:* ribbed aluminum siding over timber framing. *Interior walls:* plywood in manufacturing and warehouse sections; plaster board in offices. *Floors:* asphalt tile in offices; remainder concrete. *Lighting:* incandescent. *Heating:* gas-fired unit heaters. *Roof:* built-up felt over finger jointed timber decking. *Sprinklering:* full sprinklering in manufacturing and warehouse sections. *Area:* 151,000 square feet under roof. *Cost:* $1.58 a square foot of covered area.



Glulam timber beam-and-column bents provide 40'x250' clear span bays with roof of sawtooth contour for clerestory lighting. Construction is as simple and economical as flat roof beam arrangements.



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Construction by Contract Defeated by Ford Workers

A local industrial union in Detroit has informed its members that it is preventing "work from being given to outside contractors" through its vigilance and teamwork.

An example cited by the union—Ford Local 600 of the United Auto Workers—involves construction of a slag block chemical laboratory building scheduled for completion in March, 1960.

The union reports that its Maintenance and Construction Unit has Ford's assurance that "Department 8445 in conjunction with the Power Department will be required to furnish labor and material to excavate, pour footings, erect structural steel, build block walls and partitions, apply roofing, install heating, ventilating and air conditioning systems, install new steel lockers, relocate existing laboratory equipment from old to new factory, install lighting and do all electrical work, erect stairways, and paint interior and exterior."

Ford estimates of the manpower requirements, by trades and hours, according to the union, are these: sheet metal workers—1,004; roofers—275; electricians—1,246; masons—822; laborers—1,435; carpenters—440; riggers—230; millwrights—1,569; cement finishers—226; pipefitters—1,125; tile setters—252; welders—550; and painters—954.

This adds up to 10,133 hours of construction work to be done by members of the industrial union instead of by employees of outside contractors.

It represents the type of industrial work assignment that has created serious jurisdictional unrest within the AFL-CIO. It is one of the problems to which the new Construction Industry Joint Conference is devoting much of its attention.

Labor in Brief . . .

• **Teamsters flourish**—Teamster President James Hoffa reports the membership of his union continues to grow "despite the best efforts of government and big business to harass and disrupt" the union's operations. He says November's membership figure was 1,677,961, topping the previous all-time high of 1,633,417.

• **Strike at Canaveral**—About 50 iron workers engaged in a wildcat strike at Cape Canaveral last week in a dispute that stemmed from the use of nonunion men to remove the service tower used in the now-defunct Navaho missile program.

Glen Canyon: Still Bogged Down

The six-month-old strike at the $421-million Glen Canyon Dam project reached another impasse last week. Members of the Associated General Contractors and the Arizona building trades unions failed to resolve their differences over renegotiation of the subsistence clauses in their state-wide master labor contracts.

Five of the basic crafts—operating engineers, carpenters, cement masons, teamsters and laborers—came up with two proposals. Both suggestions affect Merritt-Chapman & Scott's efforts to settle the Glen Canyon strike and one of them affects labor costs and the competitive advantage of nonunion contractors on Arizona construction work subject to the Davis-Bacon Act.

The unions have asked the contractors to release them from liability to contractor signatories to the master agreement under the "favored nation" clause, or to scrap the present $6-a-day subsistence clause in exchange for an hourly pay differential of 50 cents.

The contracts now provide that if more favorable terms are granted to outside contractors (such as M-C&S), the unions must give contractors under the contracts the benefit of those terms. The clauses would become effective, for example, if the unions and prime contractor M-C&S should settle the Glen Canyon dispute on the basis of premium pay of 50 cents an hour and no subsistence (ENR Oct. 29, p. 90).

The AGC rejected both union proposals on December 15. It proposed a nonsubsistence or free zone in and around Page, where the damsite is located. This was rejected by the unions. They continue to seek the "favored nation" clause release.

"We can't settle with Merritt-Chapman independently without facing the danger of a lawsuit from the contractors, and the contractors won't give the release," said union spokesman W. A. Gray.

William Denny, M-C&S executive vice president, said that this assurance "seems to be the only factor holding up a settlement."

The AGC and the unions agreed to meet again, but set no date.

Scope of Hot-Cargo Ban Tested

The Federal District Court in San Francisco has before it a case that may produce a significant ruling on the hot-cargo clause of the Landrum-Griffin labor law.

Principal question is this: Can a union do indirectly what the law forbids it to do directly? The answer may shed some light on possible ways to extend the construction industry's on-site exemption.

The case arose out of a lithographers' strike. The union and its employers are negotiating a new contract. One of the points in the dispute is a union-proposed clause that would reopen a contract to negotiation if an employer requested an employee to handle any work made in a shop that is not under contract with the national union. Another point is a union proposal that employees not be required to handle any work of another plant of the same employer or a subsidiary plant that is engaged in a lockout.

The union has used hot-cargo clauses in the past. The new law, it says, has forced it to change the wording.

Under the union's proposal, a strike after a reopening of the contract would be legal and the union would be in about the same position it was before Congress banned hot-cargo clauses. The same technique could be used by the plumbers, for example, with respect to its fabrication clause.

The San Francisco Graphic Arts Employers Association says this violates the spirit of the law. The association contends that the proposed clause was "cleverly worded in an attempt to circumvent the intent of the hot-cargo provision."

Strike and Damage Suit Follow a Late Pay Day

Do union members have a legitimate grievance when they do not get paid on time because their checks are delayed in the mail?

The question is being litigated in Oakland, Calif., where members of a plasterers local staged a two-day strike over late payment. The contractor is attempting to sue the union for more than $5,000 in damages.

A provision in the labor contract says workers must be paid by 3:30 Friday afternoon and that workers are entitled to an extra full day's pay for each day's delay.

The checks were mailed by a southern California contractor on a Wednesday but did not arrive until after the weekend. After the contractor refused to pay the penalty for late payment, the union struck.

OFFICIAL PROPOSALS

Bids: See Advertisement

Iraqi Republic
Iraq Ports Administration—Basrah

Tenders are invited for the supply and delivery at Port Stores Jubailah—Basrah of the following materials:—

1) Tender for the supply of Light Buoys, with Moorings, Lanterns, Gas Accumulators and spares for Marine Survey Department, Etc. — 3.1.1960
2) Tender for the supply of Echo Sound Machines and Equipment for Survey Depth Recorder, Etc. — 10.1.1960
3) Tender for the supply of Ten Electric Transformers — 24.1.1960
4) Tender for the supply of Electrical Lamps, Wires and other Materials — 24.1.1960
5) Tender for the supply of Cables and Accessories. — 24.1.1960

Forms of Tender and specifications are obtainable from the Iraqi Republic Representatives or from Mudir, Purchasing and Tender, Iraqi Ports Administration-Basrah, during working hours, on payment of ID.1/— for each Tender (which will not be refunded).

The Tender should reach the Iraqi Ports Administration, before 13.00 hours of the closing date of each tender mentioned above.

The specifications are also available at the Embassy of Iraq, 2535 Wyoming Avenue N. W., Washington, D. C., on payment of $2.80.

Bids: January 14, 1960

Feeder Road Program

MINISTRY OF PUBLIC WORKS
REPUBLIC OF EL SALVADOR
BIDS: JANUARY 14, 1960
NOTICE TO CONTRACTORS

The Ministry of Public Works of the Republic of El Salvador advises that on January 14, 1960, bids will be received for the construction of a major portion of the proposed Feeder Road Program of the country. The Specifications, Plans and Contract Documents will be for sale in El Salvador on December 7, 1959.

All Contractors interested in taking part in this bidding are requested to obtain the necessary Documents, Plans and Specifications from the Office of the Proveedor Especifico de Obras Publicas, Edificio Morazan, 8° C. P., San Salvador, El Salvador, C. A. All requests must be accompanied by a certified check in the amount of One Hundred Sixty Dollars which will not be returned.

MINISTRY OF PUBLIC WORKS
REPUBLIC OF EL SALVADOR,
C. A.

Bids: See Advertisement

Contract BP-200.001 and NYA-980.005

THE PORT OF NEW YORK AUTHORITY

Sealed proposals for the following work will be received at the Office of the Chief Engineer, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on date indicated, at which time said proposals will be opened and read in Room 1108.

Contract BP-200.001—Brooklyn-Port Authority Piers—Clinton Wharf—Reconstruction of Wharf—Deposit $20.00 per set of documents—Bids will be received until 2:30 P.M. on Tuesday, January 12, 1960.

Contract NYA-980.005—New York International Airport—Extension of Runway 13R-31L and Related Taxiways—Paving and Utilities—Deposit $30.00 per set of documents—Bids will be received until 2:30 P.M. on Tuesday, January 19, 1960.

Contract Documents may be seen at the office of the Assistant Chief Engineer for Design of the Authority, Room 1115, and copies will be furnished upon request. No deposit will be required but the documents shall be returned in good condition not later than forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
S. Sloan Colt, Chairman

New York, December 24, 1959

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-5264) will be received at Yuma, Arizona, until 10 a.m., Mountain Standard Time, February 4, 1960, for furnishing labor and materials for Earthwork, Concrete Lining, and Structures, Wellton-Mohawk Main Conveyance Channel, Station 1183+97.77 to Station 2377+05, Wellton-Mohawk Division, Arizona, Gila Project. Location near Yuma, Arizona in Yuma County. Principal items are excavation 468,000 cu. yds.; concrete in channel lining 19,000 cu. yds.; and other work. Completion time 400 days. For particulars, address Bureau of Reclamation, P. O. Bin 151, Yuma, Arizona; or Building 53, Denver Federal Center, Denver 25, Colorado. Floyd E. Dominy, Commissioner.

Sealed bids for air conditioning postal areas, at the Federal Office Building, Vesey St., (90 Church St.), New York, N. Y., will be opened prior to the original advertised date. Public opening will be 2:00 P.M., E.S.T., December 29, 1959. Bidding material may be obtained from Design & Construction Division, P.B.S., General Services Administration, 250 Hudson Street, New York 13, N. Y.

OFFICIAL PROPOSALS

Bids: December 31, 1959

Board of Education Bureau of Construction

Notice Re: Prequalification Forms for Contractors
APPROVED AS TO FORM
Acting Corp. Counsel

NOTICE IS HEREBY GIVEN THAT The Superintendent of Design, Construction and Physical Plant, Bureau of Construction, 4th Floor, Rooms 407, 42-15 Crescent Street, Long Island City 1, New York, will receive applications for prequalification from contractors who may wish to submit bids for the proposed hereinafter specified contracts as follows: general construction, plumbing and drainage, (including heavy kitchen equipment), heating and ventilating, electrical work and lighting fixtures, modernization and conversion.

Public School 101, Manhattan. East 11th Street, between Lexington and Park Avenues.

Prequalification application forms will have to be secured from and must be submitted to the Superintendent of Design, Construction and Physical Plant, Bureau of Construction, 4th Floor, Room 407, 42-15 Crescent Street, Long Island City 1, New York.

Bids when advertised, will be received from prequalified bidders only.

Time for submitting prequalification applications by contractors will expire on Thursday, December 31, 1959.

JOSEPH R. WEISS
Superintendent of Design,
Construction and Physical Plant.
Dated: December 14, 1959
Starting Monday, December 21, 1959 (Five Days)

Bids: January 19, 1960

General Construction of CHA Project Ill.

The Chicago Housing Authority invites proposals for the General Construction of CHA project Ill. 2-35, located in the vicinity of West Lake St., and North Damen Ave., consisting of 747 dwelling units in 4 14-story and 3 8-story apartment buildings with heating plant in one building, plus an addition to the existing Community Building and related utility and site work.

Bids will be received until 2 p.m., local time, on January 19, 1960, in Room 1500 of the Chicago Housing Authority, 608 S. Dearborn St., Chicago 5, Ill., at which time all bids will be publicly opened and read aloud.

Plans and Specifications may be obtained by Depositing $75.00 (certified check or money order) with Quinn & Christiansen, Architects and Engineers, 134 N. La Salle St., Chicago 2, Ill., after December 15, 1959.

OFFICIAL PROPOSAL

RATE: $2.40 per line (or fraction) per insertion.

CLOSING DATE: 10:30 a.m. Friday for issue out following Thursday.

SEND COPY: Official Proposal Division, Engineering News-Record, P. O. Box. 12, New York 36, N. Y.

OFFICIAL PROPOSALS

Bids: December 30, 1959

Immediate Sale of Signal, Communication, Power and Light, Telephone, Telegraph and Pole Line Material

STATE OF NEW YORK
DEPARTMENT OF PUBLIC WORKS
NOTICE TO BIDDERS
Specification No. C. B. 194

1. SEALED BIDS will be received by Henry A. Cohen, Director of the Bureau of Contracts, Department of Public Works, The Governor Alfred E. Smith State Office Building, Albany, New York, until 2 P.M. Eastern Standard Time on December 30, 1959 for the following, viz: purchase from the State of New York of all of the Signal, communication, power and light, Telephone, Telegraph and pole line material generally identified in the specifications, and to be removed by the purchaser without any interference whatsoever with the operations of the Delaware and Hudson River Railroad in the City and vicinity of Saratoga Springs, Saratoga County, and State of New York.
2. Bids will be publicly opened and read at the place and time stated in the preceding paragraph which is numbered "1" herein.
3. Specification and proposal forms may be obtained in the Bureau of Contracts on the 12th Floor of the Governor Alfred E. Smith State Office Building, Albany, New York.
4. Each proposal must be made upon the form provided and must be submitted in the envelope provided therefor. The specification number must be written on the front of the envelope. The blank spaces in the proposal must be filled in, and no change shall be made in the phraseology of the proposal. Proposals that carry any omissions, erasures, alterations or additions may be rejected as informal.
5. The Superintendent of Public Works reserves the right to reject any and all proposals and may call for new proposals, if in his opinion the best interests of the State will thereby be promoted.

J. BURCH McMORRAN
Superintendent of Public Works

Bids: March 20, 1960

Construction of Port of Um Qasr Near Basrah

REPUBLIC OF IRAQ
IRAQI PORTS ADMINISTRATION

1. Tenders are invited by the Iraqi Ports Administration for the construction of three berths at Um Qasr and Works in conection therewith.
2. The Contract documents and Instructions to Persons Tendering for these Works may be inspected on or after the 21st day of December 1959, at any of the following places:—
   a) The offices of the Ports Administration at Basrah, Iraq.
   b) The offices of the Ministry of Communications, Baghdad, Iraq.
   c) The offices of the Consulting Engineers, Messrs. Coode and Partners, Abbey House, 2/8 Victoria Street, London, S.W.1, England.
   d) The offices of Messrs. Coode, Binnie and Preece, 25/36 Roxborough Apartments, Laurier Avenue W, Ottawa 4, Ontario, Canada.
   e) The Embassies of the Iraqi Republic in London, Bonn, Washington, New Delhi, Brussels and Moscow.
   f) The Consulates of the Iraqi Republic in Bombay, New York, Geneva and Stockholm.
   g) The Legations of the Iraqi Republic in Rome and Vienna.
3. Firms desiring to tender may obtain four copies of the Contract Document and one set of the drawings between the 21st day of December 1959 and the 20th day of February 1960 from either the Director General, Iraqi Ports Administration, Basrah, or the Ministry of Communications, Baghdad, or from the Consulting Engineers, Messrs. Coode and Partners in London, upon payment of ID.50 (Iraqi Dinars Fifty) or £50 (Fifty pounds Sterling) for each set of documents, which will not be returnable.
4. Tenders must be accompanied by a deposit of 7% for the first ID.1,000 of the estimated cost and 5% of the remainder of the estimated cost, to be made at the Central Bank, Baghdad or Basrah. Full detailed conditions as to this deposit may be ascertained from "Instructions to Persons Tendering" attached to the Contract Documents.
5. Tenders for these Works must be submitted to the IRAQI PORTS ADMINISTRATION (BASRAH, and will be received up to noon on the 20th day of March 1960.
6. Particular attention is drawn to Article 22 of the Instructions to Persons Tendering, namely, that tenders will only be accepted from firms of contractors who have previously executed works of a similar nature and magnitude.

DIRECTOR GENERAL,
IRAQI PORTS ADMINISTRATION,
BASRAH.

EMPLOYMENT—OPPORTUNITIES

Send NEW Ads and Inquiries to Classified Advertising Division of ENGINEERING NEWS-RECORD, P. O. Box 12, N. Y. 36.

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Phone: John J. Petrossi—IDlewood 6-8040

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Production Manager—Structural steel—Mid-Atlantic area—State salary requirements—Shop experience in first letter to P-3287, Engineering News-Record.

Office Manager—FC books, bldg. contracting exp. pref. but not essential, public acctg. bkgd. desirable; Grand Central area. Excel. oppty. with growing constr. firm, our employees know of this adv. State full details. Box EN 309, 125 W. 41 St., N. Y.

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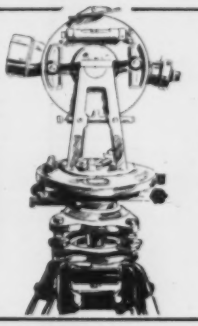

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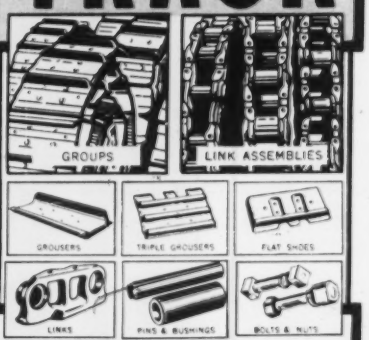

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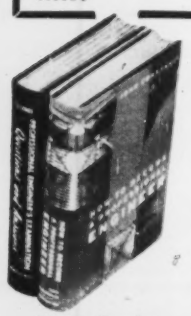

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A Christmas Wish

THIS CHRISTMAS, like all others, finds the men and women whose livelihood is construction in surroundings and shelters that run the gamut of human experience—from desert sands to Arctic snow, and from the rough cabins of construction camps to the finely appointed homes of the city dweller. But whatever the shelter, wherever the job, there will reside in these few days a universal feeling of goodwill and happiness—the Spirit of Christmas.

This year, beyond all others, this Spirit, as expressed in the words Peace on Earth Goodwill Toward Men, takes on special meaning. For it is goodwill among men that is so urgently needed to assure the peace in the world that is now tantamount to survival. May the magic of the Christmas season this year continue to weave its spell throughout all the days ahead and in hearts throughout the world. We can think of no better Christmas wish.

Aid on Foreign Aid

ECONOMIC ASSISTANCE to the less-developed countries of the world, even on the large scale that the U. S. has dispensed it, is far from adequate for their needs. What President Eisenhower saw and was told on his visits to several of these countries dramatizes this well-known fact in a way that may improve this situation—both for the needy countries and for us. And this, of course, has meaning for the construction industry, since a large proportion of foreign aid goes into capital improvements.

The improved situation referred to would come about if the newly prosperous countries of Europe could be convinced of their self interest in joining the U. S. in a cooperative foreign-aid program. Such a joint effort would increase the total amount of foreign aid, and it should reduce the U. S. share.

President Eisenhower almost certainly has discussed the prospects for greater joint economic assistance with Adenauer, De Gaulle and Macmillan during their meeting in Paris this week. And he no doubt did it with more fervor and conviction because his trip had given him a personal feeling for the magnitude of the economic problems with which these less developed countries are struggling.

As predicted (ENR Dec. 10, p. 26), the President found the subject of foreign aid uppermost in the minds of the leaders in these countries. And while he encountered a heartening amount of goodwill toward the West, he found it accompanied by a fear that the current lessening of cold war tensions, born of the Eisenhower-Khrushchev talks, will make us less willing to continue large-scale economic assistance. Much of this fear arises, the President can report, because these nations see the alternative as economic dependence on the Soviet bloc, which they recognize as leading to political subservience.

The prosperous European countries can be expected to be impressed by this argument. They also cannot have overlooked the fact that there has been talk in Washington of cutting U. S. foreign aid in order to reduce deficits in the U. S. budget and in our balance of payments. Therefore, if the West is to maintain present levels of foreign aid and perhaps even increase it as the competitive situation with the Soviets demands, European countries must contribute their share.

In view of Mr. Khrushchev's promise of increasingly stiff competition on the economic front, foreign aid—in loans, trade and gifts—will be with us a long time.

A joint aid program will be the only way to win in this competition.

A Weak Link?

PRELIMINARY UNOFFICIAL OPINION on the cause of the Malpasset Dam failure early this month points a finger of suspicion in a familiar direction—at the foundations.

No hint of doubt has come from any quarter on the design of the Malpasset arch itself. This is not surprising considering the proven ability in the field of arch dams of Andre Coyne, its designer. And while Mr. Coyne might be termed more daring than many another designer, his deliberate dam-by-dam method of advancing the art of arch-dam design has proved successful time and again over nearly a quarter century.

It also would be highly unlikely that he failed to give careful consideration to the foundation conditions. We have his emphatic recognition, in professional dissertations, of the peculiar importance of foundation stability to the safety of thin-arch dams. Moreover, in the only available published account of the Malpasset design, it appears that a geologist studied and appraised the foundation rock as a basis for engineering decision on its suitability.

What we have, perhaps, is a tragic illustration of the imbalance of technological progress in the various disciplines vital to dam design. We are probably most proficient in structural design and least proficient in predicting foundation behavoir.

It may well be that the principal lesson of the Malpasset failure will be to highlight the need for intensifying engineering emphasis on geology and foundation exploration. Whether the geological study made at Malpasset reflected the best that the art in its present state can offer or whether foundation exploration was thorough enough to support the geological opinion is not yet known. It is to be hoped that the investigating committee will diligently search for the answers to these vitally important questions.

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